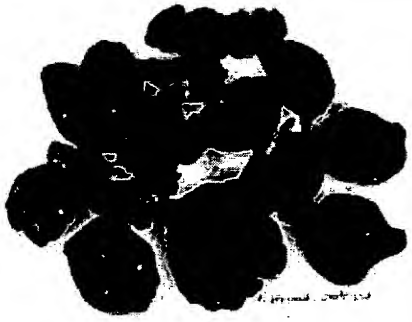
NATURAL REMEDIES

Garcinia cambogia Desr. *Calcium salt*

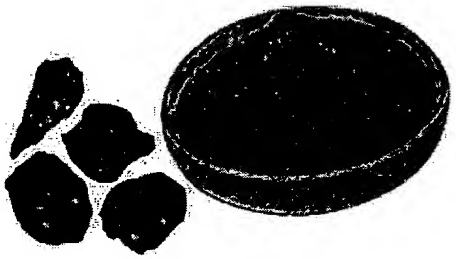


Family : Clusiaceae

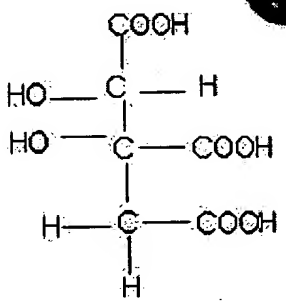
Part used : Fruits

Medicinal use : A decoction of the fruit rind is given in rheumatism and bowel complaints. The organic acid known as (-)HCA is the primary acid found in the fruit and rind of *G. cambogia*. The fruit rind and extracts of *G. cambogia*are used in may traditional recipes. In the Ayurvedic system of medicine, some flavours are said to activate digestion and are used as purgatives, in the treatment of worms and parasites, tumuors and dysentry. Neither acute nor chronic toxicity is reported with regular consumption of Garcinia products as either food or tonics. These products have been used routinely in the coastal areas of South Asia for centuries and they continue to be consumed in large amounts.

Pharmacology :[3] HCA inhibits lipogenesis, lowers the production of cholesterol and fatty acids, increases the production of glycogen in the liver, supresses appetite, increases the body's production of heat by activating the process of thermogenesis. Potential dietary supplement for weight loss and appetite control.



Active principle :



(-) erythro-hydroxy citric acid

References :

1. The Wealth of India, P.I.D., C.S.I.R., New Delhi.
2. Dallas Clouatre & Michael Rosenbaum (1990) "The Diet and health benefits of HCA", Keats Publishing Inc., New York.
3. Dallas Clouatre & Michael Rosenbaum (1990) "The Diet and health benefits of HCA", Keats Publishing Inc., New York.

Analytical specifications

It is brownish white powder with characteristic odour and chalky taste.

Physico-chemical analysis	
pH of 5% w/v solution	8.0 - 10.0
Loss on drying (Moisture)	< 5 % w/w
Acid insoluble ash	< 2% w/w
Bulk density	0.2 - 0.6g/cc
Heavy metal analysis	
Lead	< 10ppm
Cadmium	< 1ppm
Arsenic	< 2ppm
Microbiological analysis	
Total Viable Aerobic Count	< 10^4 cfu g^{-1}
Total Enterobacteriaceae	< 10^2cfu g^{-1}
Total Fungal Count	< 10^2 fs g^{-1}

Test for specific pathogen	
E. coli (1g)	Absent
Salmonella typhi (10g)	Absent
S. aureus (1g)	Absent
Mycotoxin analysis	
Aflatoxins	< 5ppb
Phytochemical analysis	
(-) Hydroxy citric acid (by HPLC)	> 65%w/w
Lactone (by HPLC)	< 5% w/w
Citric acid (by HPLC)	< 5% w/w

| Enquiry Form |

For detail enquiries contact:
NATURAL REMEDIES INDIA
No.164/3, Vasavi Temple Road,
V.V.Puram, Bangalore - 560 004
Tel : 6612526, 6612759
Fax : 91-08-6612050, 6656652
E-mail:-indherbs@giasbg01.vsnl.net.in

Agricultural Research Service

Dr. Duke's Phytochemical and Ethnobotanical Databases

WARNING

Specific Queries of the Phytochemical Database

Plant Searches

Chemicals and activities in a particular plant.
High concentration chemicals.
Chemicals with one activity.
Ethnobotanical uses.

Chemical Searches

Plants with a chosen chemical.
Activities of a chosen chemical.

Activity Searches

Plants with a specific activity.
Search for plants with several activities.
Chemicals with a specific activity.
Chemicals with a lethal dose (LD) value.

Ethnobotany Searches

Ethnobotanical uses for a particular plant.
Plants with a particular ethnobotanical use.

Database References

Reference citations.

Browsable databases [query | about]

- Ecosys--plant ecological ranges [browse | query | about]
- EthnobotDB--worldwide plant uses [browse | query | about]
- FoodplantDB--Native American food plants [browse | query | about]
- MPNADB--medicinal plants of Native America [browse | query | about]
- PhytochemDB--plant chemicals [browse | query | about]

Documents NEW

Dictionaries

Tico Ethnobotanical Dictionary.

Mini-Courses

Syllabus for Medical Botany Course taught by Jim Duke.

Rainforest Information

Other Databases of Interest

Medicinal and Poisonous Plants

U. Maryland

Moerman Database - U. Michigan

American Indian Ethnobotany Database

Plants and Cancer Treatments - U. Indiana

Cyberbotanica

Nutritional Databases

USDA Food and Nutrition Information Center
- USDA - NCI Carotenoid Database
- Food Composition Data

Med Access Nutrition Database
- Nutrition Analysis Tool v1.1

Reference Database

AGRICOLA--plant genetics subset [query | about]

Other Links of Interest

The Cancer Chronicles

Serious Consideration of Alternative Ideas

WARNING

Send comments or suggestions on the content of these pages to:

Jim Duke: *jimduke@cpcug.org*
or
Steve Beckstrom-Sternberg: *stevebs@nhgri.nih.gov*

Send technical questions or comments about the USDA, ARS, Genetic Resources Web Server to:

The Web Master: *webmaster@ars-grin.gov*

Written - September 1994, Last updated - 23 November 1998

TI Separation of **Hydroxycitric** Acid Lactone from Fruit Pectins and Polyhydroxyphenols on Polybenzimidazole Weak-Base Resin
AU Chanda, M.; Rempel, G. L.
CS Department of Chemical Engineering, University of Waterloo, Waterloo, ON, N2L 3G1, Can.
SO Ind. Eng. Chem. Res.) ACS ASAP
CODEN: IECRED; ISSN: 0888-5885
PB American Chemical Society
DT Journal
LA English
AB Polybenzimidazole (PBI) free-base resin has been used for selective sorption and recovery of **hydroxycitric** acid lactone (HCAL) from aq. solns. contg. also significant proportions of polyhydroxyphenols and fruit pectins, because the study has relevance to the problem of sepn. and recovery of HCAL, a potent antiobesity substance, from aq. **exts.** of **Garcinia** cambogia fruits, grown largely in coastal areas of South India. PBI resin has the satn. sorption capacity of 315 mg/g dry resin for HCAL, compared with 131, 138, and 293 for catechol, pyrogallol, and pectin, resp., in individual sorptions from aq. solns. The resin selectivity for HCAL over catechol, pyrogallol, and pectin in binary sorptions varies with pH, the sepn. factor of HCAL being max. over catechol and pyrogallol at a pH of 1.7-1.8 and infinite over pectin at pH < 1.8. Under vigorous agitation the initial uptake of HCAL is very fast with 30% of the equil. sorption taking place in 10 s, followed by a significantly lower rate, leading to an overall 75% attainment of equil. sorption in 30 min. In continuous column operations with PBI resin and influent contg. HCAL, polyhydroxyphenols, and fruit pectins, a proper combination of relatively low flow rate, a relatively low substrate pH (1.7-1.8), and "dead-end" stripping with alkali, which involves use of less than the theor. amt. of stripping agent necessary for complete stripping, produces an excellent sepn. and good yield of HCAL from the mixed influent.

=> fil biosis

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CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 5 May 1999 (19990505/ED)

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L59 ANSWER 1 OF 8 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1999:149013 BIOSIS
DN PREV199900149013
TI Quantitative analysis of (-)**hydroxy citric** acid and (-)**hydroxy citric** acid lactone in **Garcinia** fruits and **Garcinia** products.
AU Antony, J. I. X. (1); Josan, P. D.; Shankaranarayana, M. L.
CS (1) Kancor Flavours Extracts Ltd., Post Bag No. 3, Angamally South 683 573

India
SO Journal of Food Science and Technology, (Sept.-Oct., 1998) Vol. 35, No. 5, pp. 399-402.
ISSN: 0022-1155.
DT Article
LA English
AB A combined approach of titrimetry and HPLC for the determination of (-) **hydroxy citric** acid (HCA), (-) **hydroxy citric** acid lactone (HCAL) and citric acid using selectively prepared samples of calcium **hydroxy citrates** with and without the corresponding lactone is described. The method consisted of determining total acids by titrating against standard alkali and citric acid by HPLC in a sample of calcium **hydroxy citrate** not containing lactone. From the difference in values. HCA contents were calculated. In a sample of calcium **hydroxy citrate** containing lactone, HCA contents were determined by HPLC. Similarly, HCA content were determined in a corresponding sample after total conversion of lactone to HCA. From the difference in values, HCAL contents were calculated. Thus, both HCA and HCAL standards could be prepared and used in experiments. Finally, HPLC method were employed in the determination of HCA. HCAL and citric acid in **Garcinia** fruit rinds and **Garcinia** products.
CC Food Technology - General; Methods *13502
Biochemical Methods - General *10050
Biochemical Studies - General *10060
BC **Guttiferae 26135**
IT Major Concepts
Foods; Methods and Techniques
IT Chemicals & Biochemicals
citric acid; levo-**hydroxy citric** acid; levo-**hydroxy citric** acid lactone
IT Methods & Equipment
high performance liquid chromatography: analytical method; titrimetry: analytical method
IT Miscellaneous Descriptors
Garcinia fruits: fruit; **Garcinia** products: fruit product
ORGN Super Taxa
Guttiferae: Dicotyledones, Angiospermae, Spermatophyta, Plantae
ORGN Organism Name
Garcinia (Guttiferae)
ORGN Organism Superterms
Angiosperms; Dicots; Plants; Spermatophytes; Vascular Plants
RN 77-92-9 (CITRIC ACID)
77-92-9D (CITRIC ACID)
27750-10-3 (LEVO-**HYDROXY CITRIC** ACID)
27750-13-6 (LEVO-**HYDROXY CITRIC** ACID LACTONE)

L59 ANSWER 2 OF 8 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1999:6032 BIOSIS
DN PREV199900006032
TI **Garcinia** cambogia (**Hydroxycitric** acid) as a potential antiobesity agent: A randomized controlled trial.
AU Heymsfield, Steven B. (1); Allison, David B.; Vasselli, Joseph R.; Pietrobelli, Angelo; Greenfield, Debra; Nunez, Christopher
CS (1) Obesity Res. Cent., 1090 Amsterdam Ave., 14th Floor, New York, NY 10025 USA
SO JAMA (Journal of the American Medical Association), (Nov. 11, 1998) Vol. 280, No. 18, pp. 1596-1600.

ISSN: 0098-7484.
DT Article
LA English
AB Context.-**Hydroxycitric** acid, the active ingredient in the herbal compound **Garcinia** cambogia, competitively inhibits the extramitochondrial enzyme adenosine triphosphate-citrate (pro-3S)-lyase. As a citrate cleavage enzyme that may play an essential role in de novo lipogenesis inhibition, G. cambogia is claimed to lower body weight and reduce fat mass in humans. Objective.-To evaluate the efficacy of G. cambogia for body weight and fat mass loss in overweight human subjects. Design.-Twelve-week randomized, double-blind, placebo-controlled trial. Setting.-Outpatient weight control research unit. Participants.-Overweight men and women subjects (mean body mass index (weight in kilograms divided by the square of height in meters), approximately 32 kg/m2). Intervention.-Subjects were randomized to receive either active herbal compound (1500 mg of **hydroxycitric** acid per day) or placebo, and both groups were prescribed a high-fiber, low-energy diet. The treatment period was 12 weeks. Body weight was evaluated every other week and fat mass was measured at weeks 0 and 12. Main Outcome Measures.-Body weight change and fat mass change. Results.-A total of 135 subjects were randomized to either active **hydroxycitric** acid (n = 66) or placebo (n = 69); 42 (64%) in the active **hydroxycitric** acid group and 42 (61%) in the placebo group completed 12 weeks of treatment (P=.74). Patients in both groups lost a significant amount of weight during the 12-week treatment period (P<.001); however, between-group weight loss differences were not statistically significant (mean (SD), 3.2 (3.3) kg vs 4.1 (3.9) kg; P=.14). There were no significant differences in estimated percentage of body fat mass loss between treatment groups, and the fraction of subject weight loss as fat was not influenced by treatment group. Conclusions.-**Garcinia** rambogia failed to produce significant weight loss and fat mass loss beyond-that observed with placebo.
CC Nutrition - Malnutrition; Obesity *13203
Biochemical Studies - General *10060
Metabolism - General Metabolism; Metabolic Pathways *13002
Pharmacology - General *22002
BC **Guttiferae 26135**
Hominidae 86215
IT Major Concepts
Nutrition; Pharmacology
IT Chemicals & Biochemicals
adenosine triphosphate-citrate(pro-3S)-lyase: extramitochondrial enzyme, inhibition; **hydroxycitric** acid: active ingredient
IT Miscellaneous Descriptors
body weight loss; fat mass loss
ORGN Super Taxa
Guttiferae: Dicotyledones, Angiospermae, Spermatophyta, Plantae ; Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
human (Hominidae): female, male, overweight; **Garcinia-cambogia (Guttiferae): antiobesity agent, herbal compound**
ORGN Organism Superterms
Angiosperms; Animals; Chordates; Dicots; Humans; Mammals; Plants; Primates; Spermatophytes; Vascular Plants; Vertebrates
RN **6205-14-7Q (HYDROXYCITRIC ACID)**
27750-10-3Q (HYDROXYCITRIC ACID)
56-65-5Q (ATP)
42530-29-0Q (ATP)
94587-45-8Q (ATP)

111839-44-2Q (ATP)

L59 ANSWER 3 OF 8 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1998:324480 BIOSIS
DN PREV199800324480
TI Determination of organic acids in **Garcinia** cambogia (Desr.) by high-performance liquid chromatography.
AU Jayaprakasha, G. K. (1); Sakariah, K. K.
CS (1) Hum. Resource Dev., Cent. Food Technol. Res. Inst., Mysore-570 013 India
SO Journal of Chromatography A, (May 15, 1998) Vol. 806, No. 2, pp. 337-339. ISSN: 0021-9673.
DT Article
LA English
AB The major organic acid in **Garcinia** cambogia (Malabar tamarind) has been found to be (-)-**hydroxycitric** acid, present in concentrations of 16-18%, using high-performance liquid chromatography with 10 mM sulfuric acid as eluent. Citric and malic acids are present in Malabar tamarind in minor quantities.
CC Plant Physiology, Biochemistry and Biophysics - Chemical Constituents *51522
Biochemical Methods - General *10050
Biophysics - General Biophysical Techniques *10504
Biophysics - Molecular Properties and Macromolecules *10506
Pharmacognosy and Pharmaceutical Botany *54000
BC **Guttiferae 26135**
IT Major Concepts
Biochemistry and Molecular Biophysics; Methods and Techniques
IT Chemicals & Biochemicals
(levo)-**hydroxycitric** acid: analysis, determination, identification; citric acid: analysis; malic acid: analysis; organic acid: analysis, determination; sulfuric acid: eluent
IT Methods & Equipment
high performance liquid chromatography: analytical method, liquid chromatography
ORGN Super Taxa
Guttiferae: Dicotyledones, Angiospermae, Spermatophyta, Plantae
ORGN Organism Name
Garcinia-cambogia [Malabar tamarind] (Guttiferae)
ORGN Organism Superterms
Angiosperms; Dicots; Plants; Spermatophytes; Vascular Plants
RN 7664-93-9 (SULFURIC ACID)
77-92-9 (CITRIC ACID)
6915-15-7 (MALIC ACID)

L59 ANSWER 4 OF 8 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1998:201311 BIOSIS
DN PREV199800201311
TI **Garcinia** cambogia extract inhibits body weight gain via increased energy expenditure (EE) in rats.
AU Vasselli, J. R.; Shane, E.; Boozer, C. N.; Heymsfield, S. B.
CS Obesity Res. Cent., St. Luke's-Roosevelt Hosp., Columbia Univ., New York, NY 10025 USA
SO FASEB Journal, (March 17, 1998) Vol. 12, No. 4, pp. A505.
Meeting Info.: Annual Meeting of the Professional Research Scientists on Experimental Biology 98, Part 1 San Francisco, California, USA April 18-22, 1998 Federation of American Societies for Experimental Biology . ISSN: 0892-6638.
DT Conference

LA English
CC Pharmacognosy and Pharmaceutical Botany *54000
Metabolism - Energy and Respiratory Metabolism *13003
Pharmacology - Drug Metabolism; Metabolic Stimulators *22003
General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals *00520
IT Major Concepts
Metabolism; Pharmacognosy (Pharmacology)
IT Chemicals & Biochemicals
Garcinia-cambogia extract: **hydroxycitrate**, metabolic - drug
IT Miscellaneous Descriptors
body weight; energy expenditure; lipogenesis; Meeting Abstract
ORGN Super Taxa
Guttiferae: Dicotyledones, Angiospermae, Spermatophyta, Plantae ; Muridae: Rodentia, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
rat (Muridae); **Garcinia-cambogia (Guttiferae)**
ORGN Organism Superterms
Angiosperms; Animals; Chordates; Dicots; Mammals; Nonhuman Mammals; Nonhuman Vertebrates; Plants; Rodents; Spermatophytes; Vascular Plants; Vertebrates

L59 ANSWER 5 OF 8 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1996:40194 BIOSIS
DN PREV199698612329
TI (-) **Hydroxycitric** acid from **Garcinia** cambogia.
AU Singh, R. P.; Jayaprakasha, G. K.; Sakariah, K. K.
CS Manpower Dev., Cent. Food Technol. Res. Inst., Mysore-570 013 India
SO Biological Memoirs, (1995) Vol. 21, No. 1, pp. 27-33.
ISSN: 0379-8097.
DT Article
LA English
AB Crystals of (-) **hydroxycitric** acid were prepared from water extract of **Garcinia** cambogia by precipitation as calcium or barium salt and desalting on cation exchange resin. Water was removed by distillation with immiscible solvent, followed by recrystallization of (-) **hydroxycitric** acid lactone in ether. Purity of the preparation was confirmed by spectroscopic and chemical studies.
CC Biochemical Methods - General *10050
Biochemical Studies - General *10060
Biophysics - General Biophysical Techniques *10504
Plant Physiology, Biochemistry and Biophysics - Chemical Constituents *51522
Plant Physiology, Biochemistry and Biophysics - Apparatus and Methods *51524
Pharmacognosy and Pharmaceutical Botany *54000
BC **Guttiferae *26135**
IT Major Concepts
Biochemistry and Molecular Biophysics; Methods and Techniques; Pharmacognosy (Pharmacology)
IT Chemicals & Biochemicals
(-) **HYDROXYCITRIC** ACID
IT Miscellaneous Descriptors
AQUEOUS EXTRACTION; PURIFICATION METHOD
ORGN Super Taxa
Guttiferae: Dicotyledones, Angiospermae, Spermatophyta, Plantae
ORGN Organism Name
Garcinia cambogia (Guttiferae)

ORGN Organism Superterms
angiosperms; dicots; plants; spermatophytes; vascular plants
RN **27750-10-3** ((-) **HYDROXYCITRIC** ACID)

L59 ANSWER 6 OF 8 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1995:554598 BIOSIS
DN PREV199698568898
TI Inhibition of citrate lyase may aid aerobic endurance.
AU McCarty, M. F.
CS Nutr. 21, 1010 Turquoise Street, Suite 335, San Diego, CA 92109 USA
SO Medical Hypotheses, (1995) Vol. 45, No. 3, pp. 247-254.
ISSN: 0306-9877.
DT General Review
LA English
AB Owing to a substantial increase in glucose uptake by working muscle, glucose homeostasis during sustained aerobic exercise requires a severalfold increase in hepatic glucose output. As exercise continues and liver glycogen declines, an increasing proportion of this elevated glucose output must be provided by gluconeogenesis. Increased gluconeogenic efficiency in trained individuals is a key adaptation promoting increased endurance, since failure of hepatic glucose output to keep pace with muscle uptake rapidly leads to hypoglycemia and exhaustion. Pre-administration of (-)-**hydroxycitrate**, a potent inhibitor of citrate lyase found in fruits of the genus **Garcinia**, may aid endurance during postabsorptive aerobic exercise by promoting gluconeogenesis. Carnitine and bioactive chromium may potentiate this benefit. The utility of this technique may be greatest in exercise regimens designed to promote weight loss.
CC Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Biochemical Studies - Carbohydrates 10068
Biochemical Studies - Minerals 10069
Enzymes - Physiological Studies *10808
Physiology, General and Miscellaneous - General *12002
Physiology, General and Miscellaneous - Exercise and Physical Therapy *12010
Metabolism - Carbohydrates *13004
Nutrition - Minerals *13206
Nutrition - Proteins, Peptides and Amino Acids *13224
Digestive System - Physiology and Biochemistry *14004
BC Hominidae *86215
IT Major Concepts
Digestive System (Ingestion and Assimilation); Enzymology (Biochemistry and Molecular Biophysics); Metabolism; Nutrition; Physiology
IT Chemicals & Biochemicals
CITRATE LYASE; GLUCOSE; GLYCOGEN; CARNITINE; CHROMIUM
IT Miscellaneous Descriptors
AEROBIC EXERCISE; BIOACTIVE CHROMIUM; CARNITINE; ENDURANCE; GLUCONEOGENESIS; GLUCOSE HOMEOSTASIS; LEVO-
HYDROXYCITRATE ;
LIVER GLYCOGEN
ORGN Super Taxa
Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
ORGN Organism Name
human (Hominidae)
ORGN Organism Superterms
animals; chordates; humans; mammals; primates; vertebrates
RN 9012-83-3 (CITRATE LYASE)
50-99-7 (GLUCOSE)
9005-79-2 (GLYCOGEN)

541-15-1 (CARNITINE)
7440-47-3 (CHROMIUM)

L59 ANSWER 7 OF 8 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1983:304598 BIOSIS
DN BA76:62090
TI APPARENT STABILITY CONSTANTS OF MAGNESIUM AND CALCIUM COMPLEXES OF TRI
CARBOXYLATES.
AU GABRIEL J L; AOGAICHI T; DEAROLF C R; PLAUT G W E
CS DEP. BIOCHEM. TEMPLE UNIV. SCH. MED., PHILADELPHIA, PA. 19140.
SO ANAL LETT, (1983) 16 (2), 113-128.
CODEN: ANALBP. ISSN: 0003-2719.
FS BA; OLD
LA English
AB Arsenazo I was used as a metallochromic indicator for the spectrophotometric determination at 560-570 nm of apparent stability constants of Mg and Ca complexes of tricarboxylates and ADP between pH 7.4 and pH 8.0. Average values of apparent stability constants (mM-1) in 0.14 M Tris-HCl at pH 8.0 obtained with this method are reported sequentially for the Mg and Ca complex in the parenthesis after each compound: arsenazo I (1.62, 0.805), ADP (2.01. 0.606), citrate (2.10, 2.57), O-methyl citrate (3.84, 1.94), DL-erythro-fluorocitrate (0.538, 0.736), DL-threo-isocitrate (0.432, 0.435), DL-threo-.alpha.-methylisocitrate (0.496, 0.240), DL-erythro-.alpha.-methylisocitrate (0.161, 0.287), DL-threo-homoisocitrate (0.127, 0.192), tricarballylate (0.238, 0.143), 3-hydroxyglutarate (0.020, 0.016), and the **hydroxycitrate** diastereoisomers **garciniate** (0.368, 0.988) and hibiscusate (0.771, 1.21). The constant for magnesium DL-methylcitrate was 3.51 mM-1. [These stability constants were needed for studies of bovine heart NAD-specific isocitrate dehydrogenase using citrate and isocitrate analogs.]
CC Biochemical Studies - General *10060
Biochemical Studies - Proteins, Peptides and Amino Acids 10064
Biochemical Studies - Minerals *10069
Biophysics - General Biophysical Techniques 10504
Enzymes - Chemical and Physical *10806
Cardiovascular System - Physiology and Biochemistry 14504
BC Bovidae 85715
IT Miscellaneous Descriptors
BOVINE HEART NAD SPECIFIC ISO CITRATE DEHYDROGENASE CITRATE ISO CITRATE
ANALOGS
RN 53-84-9 (NAD)
126-44-3 (CITRATE)
7439-95-4D (MAGNESIUM)
7440-70-2D (CALCIUM)
9001-58-5Q, 9028-48-2Q (ISO CITRATE DEHYDROGENASE)

L59 ANSWER 8 OF 8 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1970:182087 BIOSIS
DN BA51:92087
TI NATURALLY OCCURRING LACTONES AND LACTAMS PART 3 THE ABSOLUTE CONFIGURATION
OF THE **HYDROXY CITRIC**-ACID LACTONES HIBISCUS-ACID AND
GARCINIA-ACID.
AU BOLL P M; SORENSEN E; BALIEU E
SO ACTA CHEM SCAND, (1969) 23 (1), 286-293.

CODEN: ACSAA4. ISSN: 0001-5393.
FS BA; OLD
LA Unavailable
CC Biochemical Studies - General *10060
Biophysics - General Biophysical Techniques 10504
Biophysics - Molecular Properties and Macromolecules *10506
Plant Physiology, Biochemistry and Biophysics - Chemical Constituents *51522
Plant Physiology, Biochemistry and Biophysics - Apparatus and Methods 51524
BC **Guttiferae 26135**
Malvaceae 26330
IT Miscellaneous Descriptors
NMR SPECTRA CIRCULAR DICHROISM OPTICAL ROTATORY DISPERSION
RN 77-92-9 (CITRIC-ACID)
27750-10-3 (**GARCINIA**-ACID)
27750-11-4 (HIBISCUS-ACID)

=> fil napral

FILE 'NAPRALERT' ENTERED AT 15:47:28 ON 14 MAY 1999
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This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d bib qrd tot

L63 ANSWER 1 OF 4 NAPRALERT COPYRIGHT (C) 1999 BD. TRUSTEES, U. IL.
AN 93:234 NAPRALERT
DN K09135
TI A NATURAL FOOD, THE MALABAR TAMARIND, MAY BE EFFECTIVE IN THE TREATMENT OF
OBESITY
AU SERGIO W
CS CORAL GABLES FL 33146 USA
SO MED HYPOTHESES (1988) 27 p. 39-40.
DT General review; (Scientific review paper)
LA ENGLISH
CHC 480
AN 93:234 NAPRALERT
DN K09135
TI A NATURAL FOOD, THE MALABAR TAMARIND, MAY BE EFFECTIVE IN THE TREATMENT OF

OBESITY
AU SERGIO W
CS CORAL GABLES FL 33146 USA
SO MED HYPOTHESES (1988) 27 p. 39-40.
DT General review; (Scientific review paper)
LA ENGLISH
CHC 480
ORGN Class: DICOT Family: GUTTIFERAE Genus: **GARCINIA** Species: CAMBOGIA
Organism part: DRIED POD
Geographic area (GT): SRI LANKA; SAS
TYPE OF STUDY (STY): ISOLATION.
COMPOUND. Chemical name (CN): CITRIC ACID,HYDROXY: (-)
CAS Registry Number (RN): **27750-10-3**
Class identifier (CI): MISCELLANEOUS

L63 ANSWER 2 OF 4 NAPRALERT . COPYRIGHT (C) 1999 BD. TRUSTEES, U. IL.
AN 92:74151 NAPRALERT
DN N15224
TI CHEMICAL CONSTITUENTS OF KOKAM FRUIT RIND
AU KRISHNAMURTHY N; LEWIS Y S; RAVINDRANATH B
CS CENT FOOD TECHNOL RES INST, MYSORE KARNATAKA INDIA
SO J FOOD SCI TECHNOL (1982) 19 p. 97-100.
DT Journal
OS MAPA 82:822671
CHC 604
AN 92:74151 NAPRALERT
DN N15224
TI CHEMICAL CONSTITUENTS OF KOKAM FRUIT RIND
AU KRISHNAMURTHY N; LEWIS Y S; RAVINDRANATH B
CS CENT FOOD TECHNOL RES INST, MYSORE KARNATAKA INDIA
SO J FOOD SCI TECHNOL (1982) 19 p. 97-100.
DT Journal
OS MAPA 82:822671
CHC 604
ORGN Class: DICOT Family: GUTTIFERAE Genus: **GARCINIA** Species: INDICA
Common name(s): KOKAM
Organism part: FRUITPEEL
Geographic area (GT): INDIA; SAS
TYPE OF STUDY (STY): ISOLATION.
COMPOUND. Chemical name (CN): CITRIC ACID,HYDROXY: (-)
CAS Registry Number (RN): **27750-10-3**
Class identifier (CI): MISCELLANEOUS
COMPOUND. Chemical name (CN): CYANIN
CAS Registry Number (RN): 2611-67-8
Class identifier (CI): FLAVONOID
COMPOUND. Chemical name (CN): CYANIDIN-3-SAMBUBIOSIDE
CAS Registry Number (RN): 33012-73-6
Class identifier (CI): FLAVONOID

L63 ANSWER 3 OF 4 NAPRALERT COPYRIGHT (C) 1999 BD. TRUSTEES, U. IL.
AN 92:9614 NAPRALERT
DN A12962
TI (-)-HYDROXYCITRIC ACID-THE PRINCIPAL ACID IN THE FRUITS OF **GARCINIA** CAMBOGIA DESR
AU LEWIS Y S; NEELAKANTAN S
CS CENT FOOD TECHNOL RES INST, MYSORE INDIA
SO PHYTOCHEMISTRY (1965) 4 p. 619-625.

DT (Research paper)
LA ENGLISH
CHC 936
AN 92:9614 NAPRALERT
DN A12962
TI (-)-HYDROXYCITRIC ACID-THE PRINCIPAL ACID IN THE FRUITS OF **GARCINIA** CAMBOGIA DESR
AU LEWIS Y S; NEELAKANTAN S
CS CENT FOOD TECHNOL RES INST, MYSORE INDIA
SO PHYTOCHEMISTRY (1965) 4 p. 619-625.
DT (Research paper)
LA ENGLISH
CHC 936
ORGN Class: DICOT Family: GUTTIFERAE Genus: **GARCINIA** Species: CAMBOGIA
Organism part: FRESH FRUIT
Geographic area (GT): INDIA; SAS
TYPE OF STUDY (STY): ISOLATION.
COMPOUND. Chemical name (CN): CITRIC ACID,HYDROXY: (-)
CAS Registry Number (RN): **27750-10-3**
Class identifier (CI): MISCELLANEOUS
ORGN Class: DICOT Family: GUTTIFERAE Genus: **GARCINIA** Species: CAMBOGIA
Common name(s): MALABAR TAMARIND
Organism part: COMMERCIAL SAMPLE OF FRUITPEEL
Geographic area (GT): INDIA; SAS
TYPE OF STUDY (STY): ISOLATION.
COMPOUND. Chemical name (CN): CITRIC ACID,HYDROXY: (-)
CAS Registry Number (RN): **27750-10-3**
Class identifier (CI): MISCELLANEOUS

L63 ANSWER 4 OF 4 NAPRALERT COPYRIGHT (C) 1999 BD. TRUSTEES, U. IL.
AN 92:3256 NAPRALERT
DN A03588
TI L-HYDROXYCITRIC ACID, THE PRINCIPLE ACID IN THE FRUITS OF ***GARCINIA*** CAMBOGIA
AU LEWIS Y S; NEELAKANTAN S
CS CENT FOOD TECHNOL INST, MYSORE INDIA
SO PHYTOCHEMISTRY (1965) 4 p. 619.
DT (Research paper)
LA ENGLISH
CHC 1416
AN 92:3256 NAPRALERT
DN A03588
TI L-HYDROXYCITRIC ACID, THE PRINCIPLE ACID IN THE FRUITS OF ***GARCINIA*** CAMBOGIA
AU LEWIS Y S; NEELAKANTAN S
CS CENT FOOD TECHNOL INST, MYSORE INDIA
SO PHYTOCHEMISTRY (1965) 4 p. 619.
DT (Research paper)
LA ENGLISH
CHC 1416
ORGN Class: DICOT Family: GUTTIFERAE Genus: **GARCINIA** Species: CAMBOGIA
Common name(s): TAMARIND,MALABAR; MALABAR TAMARIND
Organism part: FRUIT
Geographic area (GT): INDIA; SAS

TYPE OF STUDY (STY): ISOLATION.
COMPOUND. Chemical name (CN): SUCCINIC ACID
CAS Registry Number (RN): 110-15-6
Class identifier (CI): MISCELLANEOUS
COMPOUND. Chemical name (CN): TARTARIC ACID
Class identifier (CI): MISCELLANEOUS
COMPOUND. Chemical name (CN): CITRIC ACID
CAS Registry Number (RN): 77-92-9
Class identifier (CI): MISCELLANEOUS
COMPOUND. Chemical name (CN): CITRIC ACID,HYDROXY: (-)
CAS Registry Number (RN): **27750-10-3**
Class identifier (CI): MISCELLANEOUS
ORGN Class: DICOT Family: GUTTIFERAE Genus: **GARCINIA** Species: INDICA
Organism part: FRUIT
Geographic area (GT): INDIA; SAS
TYPE OF STUDY (STY): ISOLATION.
COMPOUND. Chemical name (CN): CITRIC ACID,HYDROXY: (-)
CAS Registry Number (RN): **27750-10-3**
Class identifier (CI): MISCELLANEOUS
ORGN Class: DICOT Family: GUTTIFERAE Genus: **GARCINIA** Species: ATROVIRIDIS
Organism part: FRUIT
Geographic area (GT): INDIA; SAS
TYPE OF STUDY (STY): ISOLATION.
COMPOUND. Chemical name (CN): CITRIC ACID,HYDROXY: (-)
CAS Registry Number (RN): **27750-10-3**
Class identifier (CI): MISCELLANEOUS

=> fil wpids

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L65 ANSWER 1 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1999-125439 [11] WPIDS
DNC C99-037142
TI Adiposis inhibitor - contains **hydroxy-citric** acid and organic acid.
DC B05
PA (NICH-N) NICHIYAKU KK
CYC 1
PI JP 11001431 A 990106 (9911)* 4 pp A61K031-19

ADT JP 11001431 A JP 97-152051 970610
PRAI JP 97-152051 970610
IC ICM A61K031-19
ICA A61K035-78
AB JP11001431 A UPAB: 19990316
Adiposis inhibitor contains **hydroxycitric** acid (HCA) and organic acid.
The HCA is preferably an extract from **Garcinia** cambogia.
The organic acid is malic acid and/or citric acid. The ratio of HCA to organic acid is 100 pts. wt. to at least 10 pts. wt.
ADVANTAGE - The organic acid other than HCA improves digestion and absorption of HCA especially **Garcinia** cambogia extract and improves adiposis inhibitory activity, compared with use of HCA only.
Dwg.0/1
FS CPI
FA AB; DCN
MC CPI: B04-A10; B10-C02; B14-E12

L65 ANSWER 2 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1998-589661 [50] WPIDS
DNC C98-176860
TI Agent for prevention of obesity - comprises extract of peels of **garcinia** cambodia containing (-)-**hydroxy-citric** acid and extract of mulberry leaves containing 1-deoxynojirimycin.
DC B04 D13
PA (ORUT-N) ORUTO CORP KK; (TOYO-N) TOYOTAMA KENKO SHOKUHIN KK
CYC 1
PI JP 10265397 A 981006 (9850)* 4 pp A61K035-78
ADT JP 10265397 A JP 97-71491 970325
PRAI JP 97-71491 970325
IC ICM A61K035-78
ICS A61K031-19; A61K031-70
AB JP10265397 A UPAB: 19981217
An agent for the prevention of obesity comprises a mixture of an extract of peels of **garcinia** cambodia containing (-)-**hydroxycitric** acid and an extract of mulberry leaves containing 1-deoxynojirimycin.
USE - The agent is used with food to prevent obesity.
ADVANTAGE - The agent is non-toxic.
Dwg.0/0
FS CPI
FA AB
MC CPI: B04-A10; B10-C02; B14-E12; D03-H01T

L65 ANSWER 3 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1998-482969 [42] WPIDS
DNC C98-146195
TI Production of calcium salt of (-)-erythro-**hydroxy-citric** acid - from fruit rinds of **Garcinia** species, used to alleviate fat formation by inhibiting ATP-citrate lyase.
DC B05 D16
IN PARASHURAMAN, M; RAMAN, G; SHARMA, N
PA (LUPI-N) LUPIN LAB LTD
CYC 18
PI EP 866137 A1 980923 (9842)* EN 11 pp C12S003-00
R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
ADT EP 866137 A1 EP 97-301777 970317
PRAI EP 97-301777 970317
IC ICM C12S003-00

ICS C07C059-245
AB EP 866137 A UPAB: 19981021
Production of calcium salt of (-)-erythrohydroxycitric acid (I) from fruit rinds of **Garcinia** species comprises: (i) heating an aqueous suspension of fruit rinds of **Garcinia** with a pectic enzyme or mixture of pectic enzymes at 30-50 deg. C followed by separation of the rinds from the supernatant; (ii) heating to deactivate the enzyme; (iii) adding alkali to pH 8-9; and (iv) adding CaCl2 to precipitate (I).
USE - (I) is used to alleviate fat formation by inhibiting ATP-citrate lyase.
ADVANTAGE - The process produces (I) without the need for organic solvents, unlike prior art processes. Prior art process were not economical, giving low yields or being of high cost.
Dwg.0/1
FS CPI
FA AB; DCN
MC CPI: B10-C02; B14-F06; D05-A02C; D05-H13

L65 ANSWER 4 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1998-456852 [39] WPIDS
DNC C98-138095
TI Athletic endurance re-enforcing agent and food containing it - comprises **garcinia** extract containing (-)-**hydroxy-citric** acid, its lactone or a salt of either.
DC D13
IN ANNO, T; FUSHIKI, T; ISHIHARA, K; TOMI, H
PA (NNSH) NIPPON SHINYAKU CO LTD
CYC 24
PI WO 9835664 A1 980820 (9839)* JA 18 pp A61K031-19
RW: AT BE CH DE DK EA ES FI FR GB GR IE IT LU MC NL PT SE
W: CA CN JP KR RU US
ADT WO 9835664 A1 WO 98-JP533 980209
PRAI JP 97-28914 970213
IC ICM A61K031-19
ICS A23L001-16; A23L001-22; A23L001-30; A61K031-365; A61K035-78
AB WO 9835664 A UPAB: 19981001
Athletic endurance reinforcing agent contains, as the active ingredient (-)-**hydroxycitric** acid, its lactone or a salt of either. Foods containing this athletic endurance reinforcing agent are snacks, drinks, sports foods, sports drinks, health food, noodles, bread, cereals and ingredients.
USE - The agent is useful for increasing athletic endurance.
ADVANTAGE - Even (-)-**hydroxycitric** acid, which is believed to have a pharmaceutically weak effect, can provide enough activity to be utilised as an agent.
Dwg.0/0
FS CPI
FA AB
MC CPI: D03-H01T2

L65 ANSWER 5 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1998-261418 [23] WPIDS
DNC C98-081215
TI New magnesium **hydroxy-citrate** extracted from **Garcinia** cambogia - used as hypolipaemic, anticholesterol and atheromatous agent.
DC B05
IN LAMBROPOULOS, P; SHRIVASTAVA, R
PA (LAMB-I) LAMBROPOULOS P; (SHRI-I) SHRIVASTAVA R

CYC 22
PI WO 9817671 A1 980430 (9823)* FR 22 pp C07F003-02
RW: AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU CA JP KR US
FR 2754820 A1 980424 (9823) C07F003-02
AU 9748717 A 980515 (9838) C07F003-02
ADT WO 9817671 A1 WO 97-FR1860 971017; FR 2754820 A1 FR 96-13094 961022; AU 9748717 A AU 97-48717 971017
FDT AU 9748717 A Based on WO 9817671
PRAI FR 96-13094 961022
IC ICM C07F003-02
ICS A23L001-30; A61K007-00; A61K033-06
AB WO 9817671 A UPAB: 19980610
Magnesium (-) **hydroxy citrate** (I) is new. Also claimed is a composition containing (I) formulated with an ionised or non-ionised metal selected from magnesium, copper, cobalt, zinc, nickel, selenium, silicon, manganese, lithium and iron and vitamins. Preferably 0.1-2 pts. metal salt or oxide and 0.1-1 pts. vitamin(s) are used per part of (I).

An extract of **Garcinia** cambogia, a tree of South East Asia used in traditional medicine, is treated with an aliphatic alcohol, preferably propanol, isopropanol, or ethanol, to give a precipitate which is treated with a tannin-fixer especially polyvinyl pyrrolidone. The solids are eliminated, usually by centrifuging, and the supernatant liquid is stirred in contact with an anion exchange resin. The liquid is eliminated and (I) eluted from the resin with a solution of magnesium chloride and dried, pref. by lyophilisation.

USE - (I) has hypolipaemic, anticholesterol and antiatheromatous action, and is an antioxidant, especially against free radicals. (I) is used for treating cardiovascular disorders and particularly in reducing cholesterol synthesis, inhibiting the accumulation of and assisting in the elimination of lipids in vascular smooth muscle cells, and reducing the cell proliferation due to the reduction of intracellular lipids, so reducing fatty deposits on the vascular endothelium. (I) is used in dietetic and nutritional products and in cosmetics. (I) may be administered orally at a dose of 100-1000 mg in a unit dose of 50 mg or parenterally.

Dwg.0/0
FS CPI
FA AB; DCN
MC CPI: B05-A01B; B14-D02A2; B14-F06; B14-S08

L65 ANSWER 6 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1998-252672 [23] WPIDS
DNC C98-078754
TI Dietary composition comprises chitosan and vitamin C - used to decrease body weight and control hyper-cholesterolemia and hyperglycaemia.
DC B03 B04 B05 D13
IN LITTERA, R
PA (SIRC-N) SIRC NATURAL & DIETETIC FOODS SPA
CYC 23
PI EP 841011 A1 980513 (9823)* EN 9 pp A23L001-308
R: AL AT BE CH DE DK ES FI FR GB GR IE IT LI LT LU LV MC NL PT RO SE SI
ADT EP 841011 A1 EP 97-830530 971022
PRAI IT 96-RM720 961023
IC ICM A23L001-308
ICS A23L001-30; A23L001-304; A61K031-375; A61K035-78
AB EP 841011 A UPAB: 19980610
Dietary composition (I), comprising vitamin C and chitosan and optionally

garcinia hydroxycitrate, organic chromium and vanadium.
USE - (I) is used to treat the overweight and obese (claimed), by lowering lipid absorption. It also stabilises sugar metabolism and treats hyperinsulinaemia.
ADVANTAGE - Vitamin C increases the effectiveness of chitosan as a fat binding agent. The organic chromium, vanadium and **garcinia hydroxycitrate** synergistically stabilise glucide and lipid metabolism.
Dwg.0/4

FS CPI
FA AB; DCN
MC CPI: B03-F; B04-C02E3; B14-D02A2; B14-E12; B14-F09; D03-H01T2

L65 ANSWER 7 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1998-123775 [12] WPIDS
DNC C98-040704
TI Drink for reducing appetite - comprises **hydroxy-citric** acid and carbon di oxide..
DC B05 D13
PA (NNSH) NIPPON SHINYAKU CO LTD
CYC 1
PI JP 10004939 A 980113 (9812)* 6 pp A23L002-52
ADT JP 10004939 A JP 96-167746 960627
PRAI JP 96-167746 960627
IC ICM A23L002-52
ICS A23L002-00; A23L002-02; A23L002-38
ICA A61K031-19; A61K035-78
AB JP10004939 A UPAB: 19980323
Drink comprises **hydroxycitric** acid (HCA) and carbon dioxide.
HCA is preferably derived from plant extracts belonging to **Garcinia** group, especially **Garcinia** cambogia Desr., indica Choisy and atroviridis Griff. The amount of HCA is 0.01-50 wt.%. The amount of carbon dioxide is 0.5-15 kg/cm2 at 20 deg. C. The drink is sealed in an aerosol container which can spray.
USE - The drink when taken before meals can decrease the amount of food for ingestion naturally without causing a sense of empty stomach and contributes to control of body weight.
ADVANTAGE - By addition of carbon dioxide into the drink, sterilisation is carried out under mild conditions and lactonisation of HCA is minimised. Acidity of HCA is reduced and the addition of sugar substance can be decreased.
Dwg.0/0

FS CPI
FA AB; DCN
MC CPI: B05-C04; B10-C02; B14-E12; D03-H01F; D03-H01T2

L65 ANSWER 8 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1998-045635 [05] WPIDS
DNC C98-015501
TI Nutrition-adjusted food for baked confectionery - contains powdered **Garcinia** cambodia extract.
DC D13
PA (NISH-I) NISHIDA H
CYC 1
PI JP 09294563 A 971118 (9805)* 4 pp A23L001-30
ADT JP 09294563 A JP 96-137561 960508
PRAI JP 96-137561 960508
IC ICM A23L001-30
ICS A21D002-36; A21D013-00; A23G003-00

ICA A61K035-78
AB JP09294563 A UPAB: 19980202
A nutrition-adjusted food for baked confectionery contains powdered **Garcinia** cambodia extract in a baked confectionery prod. Pref. the food contains 0.2-6. 0 g of the extract, based on a content of **hydroxycitric** acid(HCA) in the extract of about 50%, in about 80 g of the food.
Also claimed is a nutrition-adjusted food for baked confectionery contg. the extract and one or more of vitamins and minerals in a baked confectionery product.
USE - The food is suitable for diets to reduce the body wt.
ADVANTAGE - The extract inhibits synthesis of body fat effectively and con vets excessive sugar to glycogen.
Dwg.0/0
FS CPI
FA AB
MC CPI: D03-E

L65 ANSWER 9 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1998-002194 [01] WPIDS
DNC C98-000802
TI Cosmetic and/or pharmaceutical composition - is based on **hydroxy -citric** acid and can be used in treatment of skin diseases and complaints.
DC B05 D21
PA (SOLE-I) CABO SOLER J
CYC 1
PI ES 2106689 A1 971101 (9801)* 1 pp A61K035-78
ES 2106689 B1 980516 (9826) A61K035-78
ADT ES 2106689 A1 ES 96-878 960418; ES 2106689 B1 ES 96-878 960418
PRAI ES 96-878 960418
IC ICM A61K035-78
ICS A61K007-48
AB ES 2106689 A UPAB: 19980107
Composition, based on **hydroxycitric** acid or its salts or derivatives, contains 0.1-80% **hydroxycitric** acid or equivalent amount of its salt or vegetable product containing the acid or its salt e.g. **Garcinia** indica and **Garcinia** cambogia, and base material or other components.
USE - The composition is used in production of cosmetic and/or pharmaceutical preparations for external application in treatment of cellulitis paniculopatis, lipomas, ichtiosis, acne and other skin diseases.
FS CPI
FA AB
MC CPI: B04-A10; B10-C02; B14-N17; B14-R01; D08-B09A

L65 ANSWER 10 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1997-012008 [01] WPIDS
DNC C97-003319
TI Prodn. of potassium **hydroxy citric** acid - comprises extracting **Garcinia** fruit with alkyl alcohol, treating with potassium hydroxide and precipitating the prod..
DC B05 D16
IN BADMAEV, V; MAJEED, M; RAJENDRAN, R
PA (SABI-N) SABINSA CORP
CYC 70
PI WO 9636585 A1 961121 (9701)* EN 45 pp C07C059-245
RW: AT BE CH DE DK EA ES FI FR GB GR IE IT KE LS LU MC MW NL OA PT SD

SE SZ UG
W: AL AM AT AU AZ BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN
AU 9657360 A 961129 (9712) C07C059-245
US 5783603 A 980721 (9836) A61K031-19
ADT WO 9636585 A1 WO 96-US6554 960515; AU 9657360 A AU 96-57360 960515; US 5783603 A Cont of US 95-440968 950515, US 97-829143 970331
FDT AU 9657360 A Based on WO 9636585
PRAI US 95-440968 950515; US 97-829143 970331
REP US 3764692
IC ICM A61K031-19; C07C059-245
ICS C07C059-265
AB WO 9636585 A UPAB: 19970102
The following are claimed:(1) prodn. of potassium **hydroxy citric** acid by:
(a) providing **Garcinia** fruit;
(b) extracting the **Garcinia** fruit with an alkyl alcohol;
(c) treating the extract with KOH and precipitating the potassium **hydroxy citrate**, and
(d) recovering the potassium **hydroxy citrate**, and(2) prodn. of potassium **hydroxy citric** acid by
:(a) as (a) above;
(b) extracting the **Garcinia** fruit with MeOH at reflux temp. and collecting the extract;
(c) repeating step (b) twice;
(d) combining the 3 extracts of steps (b) and (c);
(e) treating the combined extracts with methanolic KOH at pH 10 and refluxing for about 3 hrs. to ppte. potassium **hydroxy citrate**;
(f) filter the precipitate;
(g) washing with MeOH and drying under vacuum, and
(h) milling, sifting, blending and packing the dried prod. under nitrogen.
USE - Potassium **hydroxy citrate** is useful as a natural appetite suppressant (claimed). The process provides **hydroxy citric** acid which is ready-to-use or can be combined with an alkali metal or any other chemical combination to obtain a chemically stable and biologically effective organic or inorganic complex of the **hydroxy citric** acid for human and animal consumption.
ADVANTAGE - The alkali salts of **hydroxy citric** acid are not hygroscopic, are soluble in aq. soln. and are easily absorbed by the G.I. tract. The process provides the free acid form stabilised as potassium salt to retain its activity.
Dwg.0/5
FS CPI
FA AB; DCN
MC CPI: B05-A01A; B10-C02; B14-K01; B14-N17C; D05-H13

L65 ANSWER 11 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1996-151058 [15] WPIDS
DNC C96-047377
TI **Hydroxy citric** acid concentrate prepd. from **Garcinia** rind - comprises free **hydroxy citric** acid, its lactone and citric acid.
DC D13 E17
IN BHANDARI, A K; MOFFETT, S A; RAVINDRANATH, B; BALASUBRAMANVAM, K
PA (RENA-N) RENAISSANCE HERBS INC; (VITT-N) VITTAL MALLYA SCI RES FOUND;

(BALA-I) BALASUBRAMANVAM K; (BHAN-I) BHANDARI A K; (MOFF-I) MOFFETT S A;
(RAVI-I) RAVINDRANATH B

CYC 65

PI WO 9605741 A1 960229 (9615)* EN 21 pp A23L002-78
RW: AT BE CH DE DK ES FR GB GR IE IT KE LU MC MW NL OA PT SD SE SZ UG
W: AM AT AU BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE KG KP KR KZ LK LR LT LU LV MD MG MN MW MX NO NZ PL PT RO RU SD SE SG SI SK TJ TM TT UA UG UZ VN
AU 9534129 A 960314 (9625) A23L002-78
US 5536516 A 960716 (9634) 5 pp A23L002-78
EP 782399 A1 970709 (9732) EN A23L002-78
R: DE FR GB IT
US 5656314 A 970812 (9738) 5 pp A23L002-78
BR 9508766 A 971111 (9801) A23L002-78
JP 10504826 W 980512 (9829) 18 pp C07C059-245
KR 97705346 A 971009 (9841) A23L002-78
TW 338710 A 980821 (9851) A23L002-08

ADT WO 9605741 A1 WO 95-US10707 950822; AU 9534129 A AU 95-34129 950822; US 5536516 A US 94-295281 940824; EP 782399 A1 EP 95-930918 950822, WO 95-US10707 950822; US 5656314 A Cont of US 94-295281 940824, US 96-633921 960417; BR 9508766 A BR 95-8766 950822, WO 95-US10707 950822; JP 10504826 W WO 95-US10707 950822, JP 96-508284 950822; KR 97705346 A WO 95-US10707 950822, KR 97-701179 970224; TW 338710 A TW 94-108196 940906

FDT AU 9534129 A Based on WO 9605741; EP 782399 A1 Based on WO 9605741; US 5656314 A Cont of US 5536516; BR 9508766 A Based on WO 9605741; JP 10504826 W Based on WO 9605741; KR 97705346 A Based on WO 9605741

PRAI US 94-295281 940824; US 96-633921 960417

REP 2.Jnl.Ref ; US 4522836; US 4643902

IC ICM A23L002-08; A23L002-78; C07C059-245
ICS A23G003-00; A23L001-30; A23L002-00; A23L002-38; A23L003-3508; C07C051-47

AB WO 9605741 A UPAB: 19960417
A **hydroxycitric** acid concentrate prepd. from **Garcinia** rind comprises: 23-54 wt.% free **hydroxycitric** acid; 6-20 wt.% lactone of **hydroxycitric** acid; 0.001-8 wt.% citric acid; and 32-70 wt.% water; where the free **hydroxycitric** acid, lactone of **hydroxycitric** acid and citric acid constitute 94-99 wt.% of total solutes dissolved in the water.

Also claimed is a process of enriching **hydroxycitric** acid from **Garcinia** rind, and a food prod. contg. **hydroxycitric** acid.

USE - **Hydroxycitric** acid is an inhibitor of the synthesis of fat and cholesterol. The concentrate can be added to a food prod., pref. a beverage or a snack bar (claimed).

Dwg.0/0

FS CPI

FA AB; DCN

MC CPI: D03-H01; E10-C02A; E10-C02B

L65 ANSWER 12 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD

AN 1995-303830 [40] WPIDS

DNC C95-135888

TI Extracts of **Garcinia** and Hibiscus have cosmetic and dermatological use - to treat acne, dandruff and seborrhoea, improve skin appearance, combat cellulite, protect against hair loss, aid slimming, etc..

DC B04 D21

IN GREFF, D

PA (SEDE-N) SEDERMA SA
CYC 0
PI FR 2716374 A1 950825 (9540)* 7 pp A61K035-78
ADT FR 2716374 A1 FR 94-1956 940218
PRAI FR 94-1956 940218
IC ICM A61K035-78
ICS A61K007-02; A61K007-06; A61K007-48
AB FR 2716374 A UPAB: 19951019
Cosmetic and dermatological compsns. with anti-cellulitic activity, which favour lipolysis and/or regulate lipogenesis and cutaneous cellular renewal, and protect against hair loss, contain an extract of **Garcinia** cambogia or Hibiscus cannabinus vulgaris L.
USE - Cosmetic use for the care of the skin, comprising anti-cellulite, strengthening, anti-seborrhoeic, tonic or epidermal restructuring, treatments, improvement of skin appearance and treatment of the scalp and acne, is claimed. In addn. the extracts have cosmetic use for slimming, to diminish the capillary micro-circulation, to give elasticity and firmness to tired skin and against dandruff.
ADVANTAGE - The extracts contain **hydroxy-citrate** which inhibits certain enzymes implicated in lipogenesis, partic. ATP:citrate lyase. The extn. of **Garcinia** cambogia can be industrialised at low cost.
Dwg.0/0
FS CPI
FA AB
MC CPI: B04-A08C2; B04-A10B; B04-A10G; B14-N17; B14-R01; B14-R02; D08-B03; D08-B04; D08-B09A

L65 ANSWER 13 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1973-63347U [42] WPIDS
TI Obesity treatment - with **garcinia** acid or **garcinia** acid lactone (or esters).
DC B05
PA (HOFF) HOFFMANN LA ROCHE INC
CYC 1
PI US 3764692 A (7342)*
PRAI US 69-872413 691029; US 70-77042 700930
IC A61K027-00
AB US 3764692 A UPAB: 19930831
Method uses compsns. contg. a carrier together with 15-600 mg. of **garcinia** acid (I)
(-)-**hydroxycitric** acid (or mono-, di, or tri-1-7C alkyl, Ph or PhCH2 ester), or **garcinia** acid lactone (II) (or mono- or di-1-7C alkyl, Ph, or PhCH2 ester) (or non-toxic basic salts of (I) or (II)). (I) and (II) are pref. administered at 1-25 mg./kg./day. (I) and (II) (and esters) are potent inhibitors of fatty acid synthesis, probably acting by inhibition of citrate cleavage enzyme.
FS CPI
FA AB
MC CPI: B07-A02; B10-C02; B10-C04; B10-E04; B12-G01; B12-J02

L65 ANSWER 14 OF 14 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1971-30196S [17] WPIDS
TI Medicaments contg **garcinia** acid or its - derivs.
DC B03 B05
PA (HOFF) HOFFMANN LA ROCHE & CIE SA F
CYC 7
PI BE 758122 A (7117)*
DE 2052131 A (7119)

NL 7015348 A (7119)
ZA 7006931 A (7131)
FR 2070174 A (7149)
GB 1311015 A (7312)
CA 923425 A (7315)
PRAI US 69-872413 691029; US 70-77042 700930
IC A61K000-00
AB BE 758122 A UPAB: 19930831
Title medicaments contg. **garcinia** acid ((-) **hydroxy citric** acid) or a deriv. e.g. its lactone, ester, or salt, are useful as inhibitors of fatty acid formation and hence in the treatment of obesity and lipid metabolism anomalies. Medicaments cont 15-600 mg (I). Derivs. are prepd. by standard methods from the acid. Medicaments are in standard form for enteral and parenteral administration.
FS CPI
FA AB
MC CPI: B07-A02; B10-C02; B10-C04; B10-E04; B12-H03

=> fil japio

FILE 'JAPIO' ENTERED AT 15:59:38 ON 14 MAY 1999
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Organization (Japio)

FILE LAST UPDATED: 29 MAR 1999 <19990329/UP>
FILE COVERS 1976 TO DATE.

=> d all tot

L72 ANSWER 1 OF 4 JAPIO COPYRIGHT 1999 JPO and Japio
AN 98-262610 JAPIO
TI NEW CALCIUM COMPOSITION
IN KOBAYASHI TADASHI; OKANO TOSHIO; ISHIZAKI TOSHIYUKI; USHIROSAKO AKIRA;
KIMIZUKA FUSAO; MORITA HIDEO
PA TAKARA SHUZO CO LTD, JP (CO 352134)
PI JP 10262610 A 19981006 Heisei
AI JP 97-88647 (JP09088647 Heisei) 19970325
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 98, No. 10
IC ICM (6) A23L001-304
ICS (6) A61K031-19; (6) A61K033-06
CC 11.4 AGRICULTURE, FORESTRY, AND FISHERY - Food products
14.4 ORGANIC CHEMISTRY - Medicines
CT R018 COMMON - Fluidized bed
R059 MACHINERY - Freeze-drying
AB PURPOSE: TO BE SOLVED:To obtain the subject composition more excellent in solubility than a conventional calcium agent, capable of being expected to improve absorption, comprising a calcium source, a **hydroxycitric** acid source and a malic acid source, at least readily dissolving calcium. CONSTITUTION: composition comprises a calcium source, a **hydroxycitric** acid (HCA source) and a malic acid and readily dissolves calcium. Preferably the calcium source is calcium carbonate and/or calcium chloride, the HCA source is a naturally occurring one, a gene recombinant-derived one and/or chemically synthesized one and the malic acid source is malic acid, calcium malate and/or sodium malate. The HCA source is preferably derived from a plant of the species

Garcinia. The molar ratio of the calcium source: the HCA source: the malic acid source is preferably 1:(0.2-0.7):(3-1.0) calculated as calcium, HCA and malic acid.

L72 ANSWER 2 OF 4 JAPIO COPYRIGHT 1999 JPO and Japio
AN 98-004939 JAPIO
TI BEVERAGE
IN TOMI HIROTAKA; TAMURA KOICHI
PA NIPPON SHINYAKU CO LTD, JP (CO 000415)
PI JP 10004939 A 19980113 Heisei
AI JP 96-167746 (JP08167746 Heisei) 19960627
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 98, No. 1
IC ICM (6) A23L002-52
ICS (6) A23L002-00; (6) A23L002-02; (6) A23L002-38
ICA (6) A61K031-19; (6) A61K035-78
CC 11.4 AGRICULTURE, FORESTRY, AND FISHERY - Food products
14.4 ORGANIC CHEMISTRY - Medicines
CT R019 COMMON - Aerosol
R025 FOODSTUFF - Diet food
R027 FOODSTUFF - New protein source
AB PURPOSE: TO BE SOLVED:To obtain a beverage for diet capable of stabilizing activity of **hydroxycitric** acid which inhibits citric acid ATP lyase, one of enzymes in a metabolic path from a carbohydrate to a fat, by including carbon dioxide into a solution containing **hydroxycitric** acid.
CONSTITUTION: beverage useful for diet is obtained by including carbon dioxide into a solution containing **hydroxycitric** acid such as a **Garcinia** extract to stabilize activity of **hydroxycitric** acid and induce a distension feeling with carbon dioxide. The content of **hydroxycitric** acid is 0.01-50wt.% and the content of carbon dioxide is 0.5-15kg/cm2 at 20.degree.C. The beverage can be taken before meals as an aerosol beverage.

L72 ANSWER 3 OF 4 JAPIO COPYRIGHT 1999 JPO and Japio
AN 97-294563 JAPIO
TI NUTRITIONAL REGULATING FOOD IN BAKED CONFECTIONERY
IN NISHIDA HIROSHI
PA NISHIDA HIROSHI, JP (IN)
PI JP 09294563 A 19971118 Heisei
AI JP 96-137561 (JP08137561 Heisei) 19960508
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 97, No. 11
IC ICM (6) A23L001-30
ICS (6) A21D002-36; (6) A21D013-00; (6) A23G003-00
ICA (6) A61K035-78; (6) A61K035-78
CC 11.4 AGRICULTURE, FORESTRY, AND FISHERY - Food products
14.4 ORGANIC CHEMISTRY - Medicines
AB PURPOSE: TO BE SOLVED:To obtain a nutritional regulating food having more remarkable effects on weight reduction than those of a baked confectionery containing only vitamins and minerals by adding a powder of a **Garcinia** cambogia extract and various vitamins, minerals, etc., to a baked confectionery.
CONSTITUTION: nutritional regulating food is obtained by adding a powder of a **Garcinia** cambogia extract having about 50% content of **hydroxycitric** acid(HCA) and various vitamins and minerals to a wheat flour, oils and fats, a sweetener, a perfume, etc., uniformly stirring the resultant mixture, placing the uniform mixture in a mold and baking the mixture. The resultant food in the baked confectionery has more

remarkable effects on weight reduction than those of a food containing only the vitamins and minerals. The amount of the added powder of the **Garcinia** cambogia extract is preferably within the range of about 0.2-6.0g based on 80g weight of the whole when the HCA content is about 50%.

L72 ANSWER 4 OF 4 JAPIO COPYRIGHT 1999 JPO and Japio
AN 97-051779 JAPIO
TI HEALTH FOOD
IN NISHIDA HIROSHI
PA NISHIDA HIROSHI, JP (IN)
PI JP 09051779 A 19970225 Heisei
AI JP 95-206089 (JP07206089 Heisei) 19950811
SO PATENT ABSTRACTS OF JAPAN (CD-ROM), Unexamined Applications, Vol. 97, No. 2
IC ICM (6) A23L001-30
CC 11.4 AGRICULTURE, FORESTRY, AND FISHERY - Food products
14.4 ORGANIC CHEMISTRY - Medicines
AB PURPOSE: TO BE SOLVED:To obtain a health food capable of expecting a slenderizing effect more excellently than a usual health food, containing only **Garcinia** cambogia essence as an active component.
CONSTITUTION: health food is produced by adding borage oil and red pepper powder to **Garcinia** cambogia essence. Synthesis of fat is inhibited and glycogen is produced by the action of HCA (**hydroxycitric** acid) abundantly contained in the **Garcinia** cambogia essence, and on the other hand, .gamma.-linolenic acid in the essence stimulates brown fat calls to generate heat, and further, body temperature is raised by the red pepper powder, then consumed calorie is increased, thus metabolism of glycogen generated by the **Garcinia** cambogia essence is promoted and a synergistic slenderizing effect is obtained, as a result.

=> fil jicst

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FILE COVERS 1985 TO 11 MAY 1999 (19990511/ED)

=> d all tot

L74 ANSWER 1 OF 2 JICST-EPlus COPYRIGHT 1999 JST
AN 980707639 JICST-EPlus
TI Effect of administering **Garcinia** Cambodia HCA extract mixed food on fat accumulation of rats in autonomic movement.
AU KAJIWARA NAEMI; ANZAI HIROKO; SERYU AKIKO; SUZUKI KEIKO
OKUDA TOYOKO
MORI TAKAYOSHI
CS Kobe Women's Coll.
Osaka Kyoiku Univ.
Nissin Food Prod. Co., Ltd.
SO Nippon Eiyo, Shokuryo Gakkai Sokai Koen Yoshishu, (1998) vol. 52nd, pp. 135. Journal Code: X0098A
CY Japan
DT Conference; Short Communication
LA Japanese
STA New

CC EJ02034Q (591.13:547.915)
CT Hypericaceae; citric acid; rat; dietary effect; spontaneous behavior; body weight; lipid metabolism
BT Violales; Choripetalae; Dicotyledoneae; Angiospermae; Phanerogamae; plant(organism); aliphatic alcohol; alcohol; hydroxy compound; aliphatic carboxylic acid; carboxylic acid; Myomorpha; Rodentia; Mammalia; Vertebrata; animal; effect; motion; weight(gravity); metabolism
ST **hydroxycitrate**; fat content of body

L74 ANSWER 2 OF 2 JICST-EPlus COPYRIGHT 1999 JST
AN 980176671 JICST-EPlus
TI Effects of Liquid **Garcinia** Extract and Soluble **Garcinia** Powder on Body Weight Change. A Possible Material for Suppressing Fat Accumulation.
AU SAWADA HARUMICHI; TOMI HIRONORI; TAMURA KOICHI; ANNO TAKAHIKO
CS Nihonshin'yaku Shokuhinkaiken
SO Nippon Yuka Gakkaishi (Journal of Japan Oil Chemists' Society), (1997) vol. 46, no. 12, pp. 1467-1474. Journal Code: G0238A (Fig. 4, Tbl. 4, Ref. 17)
CODEN: NIYUFC; ISSN: 1341-8327
CY Japan
DT Journal; Article
LA Japanese
STA New
AB **Garcinia** is a spice which has been found effective for reducing body weight. There are many products containing **garcinia** extract as calcium type powder, with the active principle (-) **hydroxycitric** acid (HCA) presumably present as calcium salt. The calcium type powder is stable but not ideal for food products due to its insolublity in water. A soluble **garcinia** extract should thus be produced having the lactone form of HCA. This form does not inhibit ATP-citrate lyase in vitro, which is a key enzyme in lipid synthesis. A soluble **garcinia** extract containing much HCA in the lactone form would be of little use for reducing body weight. Because the lactone form of HCA was found to be possibly active in vivo, the authors prepared soluble **garcinia** powder and liquid **garcinia** extract containing much lactone form of HCA, and assessment of usefulness was made by examining effects on weight change in rats and humans by comparison with calcium type **garcinia** powder. Soluble **garcinia** powder was found more effective for weight reduction than the calcium type **garcinia** powder in rats when administered in feed. Soluble **garcinia** powder and liquid **garcinia** extract should be effective to reduce human body weight by acting to decrease fat accumulation. (author abst.)
CC FJ10010W (664.4/.5)
CT Hypericaceae; spice; dietary effect; lipid metabolism; metabolic regulation; body weight; rat; human(primates); alcohol; carboxylic acid
BT Violales; Choripetalae; Dicotyledoneae; Angiospermae; Phanerogamae; plant(organism); seasoning(condiment); food; effect; metabolism; adjustment; weight(gravity); Myomorpha; Rodentia; Mammalia; Vertebrata; animal; Primates; hydroxy compound
ST hydroxy carboxylic acid

=> fil drugu

FILE 'DRUGU' ENTERED AT 16:04:31 ON 14 MAY 1999

FILE LAST UPDATED: 11 MAY 1999 <19990511/UP>

>>> DERWENT DRUG FILE (SUBSCRIBER) <<<
>>> FILE COVERS 1983 TO DATE <<<
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ON REGISTRY SEGMENT <<<

=> d bib abs

L81 ANSWER 1 OF 1 DRUGU COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 98-45479 DRUGU T P
TI **Garcinia** cambogia (**hydroxycitric** acid) as a potential antiobesity agent. A randomized controlled trial.
AU Heymsfield S B; Allison D B; Vasselli J R; Pietrobelli A; Greenfield D; Nunez C
CS Univ.Columbia
LO New York, N.Y., USA
SO J.Am.Med.Assoc. (280, No. 18, 1596-600, 1998) 2 Fig. 1 Tab. 32 Ref.
CODEN: JAMAAP ISSN: 0098-7484
AV Obesity Research Center, 1090 Amsterdam Ave., 14th Floor, New York, NY 10025, U.S.A. (e-mail: sbh2@columbia.edu).
LA English
DT Journal
FA AB; LA; CT
FS Literature
AN 98-45479 DRUGU T P
AB Moderately overweight patients were randomized to receive p.o. **Garcinia** cambogia extract (**hydroxycitric** acid) or placebo in a randomized, double blind trial. Weight loss and body fat loss were similar in both groups. The fraction of subject weight lost as fat was also unaffected by treatment. The incidence of adverse events (headache, upper respiratory tract symptoms, GI tract symptoms) was similar between groups. It was concluded that G. cambogia failed to produce significant weight loss and fat mass loss beyond that observed with placebo.
ABEX Methods 180 Moderately overweight patients were screened and 135 were randomized to receive placebo (n=69, 14 male) or G. cambogia (n=66, 5 male). Results The estimated mean weight loss for the placebo group was 4.1 kg and for the treatment group 3.2 kg. The weight loss within each group was significantly different from baseline, but between group weight loss differences were not significant. Body weight change differences remained non-significant after controlling for patient starting weight, sex and age. The power of this study was estimated at 89% to detect between group differences in weight loss as small as 2 kg. With the LOCF intent-to-treat analysis, the estimated mean percentage of body fat loss for the placebo group was 2.16% and the estimated percentage of fat mass loss for the treatment group was 1.44% (not a significant difference). The change in fat mass relative to the change in body mass was similar between treatment and placebo groups. No patient was removed from the study for a treatment related adverse event, and the number of reported adverse events was not significantly different between the control and treatment groups (headache, upper respiratory tract symptoms, GI tract symptoms). (TB)

=> fil ifipat

FILE 'IFIPAT' ENTERED AT 16:05:54 ON 14 MAY 1999

FILE COVERS 1950 TO PATENT PUBLICATION DATE: 4 May 1999 (19990504/PD)
FILE LAST UPDATED: 7 May 1999 (19990507/ED)
HIGHEST PATENT NUMBER: US5901368
UNITERM INDEXING IS AVAILABLE IN THE IFIUDB FILE
UNITERM INDEXING LAST UPDATED: 15 Apr 1999 (19990415/UP)
INDEXING CURRENT THROUGH PAT PUB DATE: 24 Nov 1998 (19981124/PD)

=> d all tot

L87 ANSWER 1 OF 5 IFIPAT COPYRIGHT 1999 IFI
AN 3050263 IFIPAT;IFIUDB;IFICDB
TI NUTRITIONAL SUPPLEMENT FOR INCREASED MUSCLE SIZE AND STRENGTH FOR BODY BUILDERS; CONTAINING ACETYL-L-CARNITINE
INF Gardiner, Paul T., 46 Gladstone Sq., Brampton, Ont, CA
IN Gardiner Paul T (CA)
PAF Unassigned
PA Unassigned Or Assigned To Individual (68000)
EXNAM Page, Thurman K
EXNAM Faulkner, D
AG Dinsmore & Shohl LLP
PI US 5817329 19981006
AI US 97-806124 19970228
XPD 28 Feb 2017
FI US 5817329 19981006
DT UTILITY
FS CHEMICAL
OS CA 129:281002
AB The present invention relates to the method and composition for use of diet supplements by athletes and bodybuilders. A first supplement comprising, the amino acid acetyl-L-Carnitine, in conjunction with a series of nutritionally essential branchedchain amino acids, zinc, OKG, taurine, in conjunction with two other independently administered supplements: a fat burning agent and a creatine synthesizer.
CLMN 18
GI 2 Drawing Sheet(s), 2 Figure(s).
ECLM D R A W I N G

ACLM 1. A method of supplementing the diet of an athlete, comprising administering acetyl-L-carnitine to the athlete in a dosage of about 500 mg to about 1500 mg of acetyl-L-carnitine on a daily basis.
2. A method according to claim 1, where the acetyl-L-carnitine is administered in combination with L-glutamine, L-Leucine, L-Isoleucine and L-Valine.
3. A method according to claim 1, where the acetyl-L-carnitine is administered in combination with L-glutamine, L-Leucine, L-Isoleucine, L-Valine and Ornithine alpha-ketoglutarate.
4. A method according to claim 1, where the acetyl-L-carnitine is administered in combination with L-glutamine, L-Leucine, L-Isoleucine, L-Valine, Ornithine alpha-ketoglutarate and zinc.
5. A method according to claim 1, where the acetyl-L-carnitine is administered in combination with L-glutamine, L-Leucine, L-Isoleucine, L-Valine, Ornithine alpha-ketoglutarate, zinc and taurine.

6. A composition for supplementing the diet of an athlete, comprising the following components in the indicated amounts:

D R A W I N G

7. A composition according to claim 6, wherein a daily dosage of the composition comprises:

D R A W I N G

8. A composition as in claim 7, where the daily dosage comprises:

D R A W I N G

9. A method of supplementing the diet of an athlete, comprising, administering to the athlete on a daily basis, a first diet supplement composition comprising:

D R A W I N G

10. A method of supplementing the diet of an athlete, as in claim 9 where the daily dosage of said first diet supplement composition comprises:

D R A W I N G

11. A method of supplementing the diet of an athlete, comprising the steps of: (a) administering to the athlete on a daily basis, a first supplement composition comprising:

D R A W I N G

(b) administering to the athlete on a daily basis and before each meal, a second supplement composition, administered to said athlete independently of said first supplement, from about 30 minutes to about 60 minutes before each meal, respectively, wherein the second supplement comprises: (i) from about 800 mg to about 1100 mg of **hydroxycitric** acid; (ii) from about 10 mg to about 22 mg of ephedra; (iii) from about 75 mg to about 214 mg of caffeine; (iv) from about 14 mg to about 16 mg of salicin; (v) from about 95 mg to about 200 mg of L-Carnitine; and (vi) from about 250 mcg to about 325 mcg of chromium picolinate; and (c) administering to the athlete on a daily basis, a third supplement composition, administered independently of said first or second supplement, wherein the third supplement comprises: (i) from about 4500 mg to about 7000 mg of creatine monohydrate; and (ii) from about 400 mg to about 600 mg of amino acids comprising L-methionine, L-arginine and L-glycine, in about equal parts, by weight.

12. A method of supplementing the diet of an athlete as in claim 11, wherein the daily dosage of said first diet supplement is:

D R A W I N G

13. A method of supplementing the diet of an athlete as in claim 11, wherein said second diet supplement dosage administered before each meal comprises: (i) about 1000 mg of **hydroxycitric** acid; (ii) about 20 mg of ephedra; (iii) about 200 mg of caffine; (iv) about 15 mg of salicin; (v) about 100 mg L-Carnitine; and (vi) about 300 mcg chromium picolinate.

14. A method of supplementing the diet of an athlete as in claim 11, wherein said third diet supplement dosage administered before each meal comprises: (i) about 6000 mg creatine monohydrate; and (ii) about 500 mg of amino acids comprising L-methionine, L-arginine and L-glycine in about equal parts, by weight.

15. A method according to any one of claims 11, 12, 13 or 14 wherein the ephedra is included as a Mahuang Extract.

16. A method according to any one of claims 11, 12, 13 or 14 wherein the caffine is included as a Guarana Extract.

17. A method according to any one of claims 11, 12, 13, or 14 wherein the salicin is included as a Willow Bark Extract.

18. A method according to any one of claims 11, 12, 13 or 14 wherein the **Hydroxycitric** acid is included as a **Garcinia** Cabogia Extract.

REP	US 4144357	Mar 1979	426096000	Mohammed
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NCL NCLM: 424439000
NCLS: 424449000; 426072000; 514561000; 562516000
IC ICM: A61K047-00
EXF 424439000; 424449000; 426072000; 514561000; 562516000
ARTU 165

L87 ANSWER 2 OF 5 IFIPAT COPYRIGHT 1999 IFI
AN 3013348 IFIPAT;IFIUDB;IFICDB
TI POTASSIUM **HYDROXYCITRATE** FOR THE SUPPRESSION OF APPETITE AND INDUCTION OF WEIGHT LOSS; INCREASE FAT METABOLISM
INF Badmaev, Vladimir, Piscataway, NJ
Majeed, Muhammed, Piscataway, NJ
Rajendran, R., Bangalore, IN
IN Badmaev Vladimir; Majeed Muhammed; Rajendran R (IN)
PAF Sabinsa Corporation, Piscataway, NJ
PA Sabinsa Corp (39311)
EXNAM Jarvis, William R A
AG Nikaido Marmelstein Murray Oram, LLP
PI US 5783603 19980721
AI US 97-829143 19970331
XPD 15 May 2015
RLI US 95-440968 19950515 CONTINUATION ABANDONED
FI US 5783603 19980721
DT UTILITY
FS CHEMICAL
AB The present invention provides methods of suppressing appetite and causing weight loss by administering to a patient **hydroxy citric** acid in the form of a potassium salt extracted from **Garcinia** fruit. Methods of inhibiting cytoplasmic citric lyase and increasing fat metabolism in a patient are also described.
CLMN 9
GI 4 Drawing Sheet(s), 4 Figure(s).
ECLM D R A W I N G

1. A method for suppressing appetite in a patient in need of such effect comprising administering to said patient an appetite suppressing effective amount of potassium **hydroxycitric** acid composition comprising less than 2% by weight of potassium **hydroxycitric** lactone, based on the combined amount of potassium **hydroxycitric** acid and potassium **hydroxycitric** lactone.

ACLM 2. A method for inhibiting cytoplasmic citric lyase in a patient in need of such inhibition comprising administering to said patient a citrate lyase inhibiting effective amount of potassium **hydroxycitric** acid composition comprising less than 2% by weight of potassium **hydroxycitric** lactone, based on the combined amount of potassium **hydroxycitric** acid and potassium **hydroxycitric** lactone.

3. A method of increasing fat metabolism in a patient in need of such effect comprising administering to said patient a fat metabolism increasing effective amount of potassium **hydroxycitric** acid composition comprising less than 2% by weight of potassium **hydroxycitric** lactone, based on the combined amount of potassium **hydroxycitric** acid and potassium **hydroxycitric** lactone.

4. A method for causing weight loss in a patient in need of such an effect comprising administering to said patient a weight loss effective amount of potassium **hydroxycitric** acid composition comprising

less than 2% by weight of potassium **hydroxycitric** lactone, based on the combined amount of potassium **hydroxycitric** acid and potassium **hydroxycitric** lactone.

5. A method as recited in claim 4 wherein the potassium **hydroxycitric** acid is non-hygroscopic.

6. A method for suppressing appetite in a subject in need of such effect comprising administering an appetite suppressing effective amount of potassium **hydroxycitric** acid composition made by a process comprising: a) extracting **Garcinia** fruit with an alkyl alcohol at least three times to obtain a first extract, a second extract and a third extract; b) combining said first extract, said second extract and said third extract to obtain a combined extract; c) treating said combined extract with potassium hydroxide and reflux to form potassium **hydroxy citrate** precipitate; d) filtering said precipitate to obtain filtered precipitate; e) washing said filtered precipitate with an alkyl alcohol to obtain washed precipitate; f) drying said washed precipitate under vacuum to obtain dried precipitate; and g) milling, sifting, blending and packing said dried precipitate under nitrogen to obtain said potassium **hydroxycitric** acid composition.

7. A method for inhibiting cytoplasmic citric lyase in a patient in need of such inhibition comprising administering to said patient a citrate lyase inhibiting effective amount of potassium **hydroxycitric** acid composition made by a process comprising: a) extracting **Garcinia** fruit with an alkyl alcohol at least three times to obtain a first extract, a second extract and a third extract; b) combining said first extract, said second extract and said third extract to obtain a combined extract; c) treating said combined extract with potassium hydroxide and reflux to form potassium **hydroxycitrate** precipitate; d) filtering said precipitate to obtain filtered precipitate; e) washing said filtered precipitate with an alkyl alcohol to obtain washed precipitate; f) drying said washed precipitate under vacuum to obtain dried precipitate; and g) milling, sifting, blending and packing said dried precipitate under nitrogen to obtain said potassium **hydroxycitric** acid composition.

8. A method of increasing fat metabolism in a patient in need of such effect comprising administering to said patient a fat metabolism increasing effective amount of potassium **hydroxycitric** acid composition made by a process comprising: a) extracting **Garcinia** fruit with an alkyl alcohol at least three times to obtain a first extract, a second extract and a third extract; b) combining said first extract, said second extract and said third extract to obtain a combined extract; c) treating said combined extract with potassium hydroxide and reflux to form potassium **hydroxycitrate** precipitate; d) filtering said precipitate to obtain filtered precipitate; e) washing said filtered precipitate with an alkyl alcohol to obtain washed precipitate; f) drying said washed precipitate under vacuum to obtain dried precipitate; and g) milling, sifting, blending and packing said dried precipitate under nitrogen to obtain said potassium **hydroxycitric** acid composition.

9. A method for causing weight loss in a patient in need of such an effect comprising administering to said patient a weight loss effective amount of potassium **hydroxycitric** acid composition made by a process comprising: a) extracting **Garcinia** fruit with an alkyl alcohol at least three times to obtain a first extract, a second extract and a third extract; b) combining said first extract, said second extract and said third extract to obtain a combined extract; c) treating said combined extract with potassium hydroxide and reflux to form potassium **hydroxycitrate** precipitate; d) filtering said precipitate to

obtain filtered precipitate; e) washing said filtered precipitate with an alkyl alcohol to obtain washed precipitate; f) drying said washed precipitate under vacuum to obtain dried precipitate, and g) milling, sifting, blending and packing said dried precipitate under nitrogen to obtain said potassium **hydroxycitric** acid composition.

REP US 3764692 Oct 1973 424279000 Lowenstein
US 5536516 Jul 1996 426271000 Moffett et al.

REN McCarty, Chemical Abstracts, vol. 121, No. 9, Abstract #104969f, 1994, p. 670.
Sullivan et al, Chemical Abstracts, vol. 81, No. 4, Abstract #21740d, 1974, p. 110.
Sullivan et al, Chemical Abstracts, vol. 87, No. 3, Abstract #20073a, 1977, p. 399.

NCL NCLM: 514574000
NCLS: 514909000

IC ICM: A61K031-19

EXF 514574000

ARTU 125

L87 ANSWER 3 OF 5 IFIPAT COPYRIGHT 1999 IFI

AN 2871251 IFIPAT;IFIUDB;IFICDB

TI **HYDROXYCITRIC** ACID CONCENTRATE AND FOOD PRODUCTS PREPARED THEREFROM

INF Balasubramanvam, Karanam, 7971, 2nd Main, IIIrd Block, Thyagaraja Nagar, Bangalore, IN
Bhandari, Ashok Kumar, 2/4A Kensington Road, Bangalore, IN
Moffett, Scott Alexander, 12730 Mulholland Dr, Beverly Hills, CA, 90210
Ravindranath, Bhagavathula, 714, 7th Main Road, J P Nagar III phase, Bangalore, IN

IN Balasubramanvam Karanam (IN); Bhandari Ashok Kumar (IN); Moffett Scott Alexander; Ravindranath Bhagavathula (IN)

PAF Unassigned

PA Unassigned Or Assigned To Individual (68000)

EXNAM Pratt, Helen

AG Fish & Richardson PC

PI US 5656314 19970812

AI US 96-633921 19960417

XPD 24 Aug 2014

RLI US 94-295281 19940824 CONTINUATION 5536516

FI US 5656314 19970812
US 5536516

DT UTILITY

FS CHEMICAL

AB A **hydroxycitric** acid concentrate prepared from **Garcinia** rind including 23 to 54% by weight free **hydroxycitric** acid, 6 to 20% by weight lactone of **hydroxycitric** acid, 0.001 to 8% by weight citric acid, and 32 to 70% by weight water, wherein the free **hydroxycitric** acid, the lactone of **hydroxycitric** acid and the citric acid constitute 94 to 99% by weight of total solutes dissolved in the water. Also disclosed is a method of preparing such a concentrate from **Garcinia** rind, as well as food products containing **hydroxycitric** acid.

CLMN 17

ECLM 1. A **hydroxycitric** acid concentrate prepared from **Garcinia** rind, said concentrate comprising 23 to 54% by weight free **hydroxycitric** acid, 6 to 20% by weight lactone of **hydroxycitric** acid, 0.001 to 8% by weight citric acid, and 32 to 70% by weight water, wherein said free **hydroxycitric** acid, said lactone of **hydroxycitric** acid and said citric acid constitute

94 to 99% by weight of total solutes dissolved in said water.

ACLM 2. The **hydroxycitric** acid concentrate of claim 1 comprising 32 to 48% by weight free **hydroxycitric** acid, 10 to 18% by weight lactone of **hydroxycitric** acid, 0.001 to 6% by weight citric acid, and 35 to 55% by weight water, in which said free **hydroxycitric** acid, said lactone of **hydroxycitric** acid and said citric acid constitute 96 to 99% by weight of total solutes dissolved in said water.

3. The **hydroxycitric** acid concentrate of claim 2 comprising 36-45% by weight free **hydroxycitric** acid, 13 to 16% by weight lactone of **hydroxycitric** acid, 0.001 to 3% by weight citric acid, and 38 to 50% by weight water, wherein said free **hydroxycitric** acid, said lactone of **hydroxycitric** acid and said citric acid constitute 98 to 99% by weight of total solutes dissolved in said water.

4. A food product comprising 0.17 to 23% by weight free **hydroxycitric** acid, 0.08 to 7% by weight lactone of **hydroxycitric** acid, and at least 0.0002% by weight citric acid.

5. The food product of claim 4 comprising 0.35 to 12% by weight free **hydroxycitric** acid, 0.15 to 4% by weight lactone of **hydroxycitric** acid, and at least 0.0002% by weight citric acid.

6. The food product of claim 5, further comprising 0.04 to 0.4% by weight vitamin C.

7. The food product of claim 6, further comprising 0.04 to 0.08% by weight vitamin C.

8. The food product of claim 6, wherein said food product is a beverage.

9. The food product of claim 6, wherein said food product is a snack bar.

10. The food product of claim 5, further comprising 0.8 to 22% by weight fiber.

11. The food product of claim 10, wherein said food product is a beverage.

12. The food product of claim 10, wherein said food product is a snack bar.

13. The food product of claim 5, wherein said food product is a beverage.

14. The food product of claim 5, wherein said food product is a snack bar.

15. The food product of claim 4, further comprising 0.04 to 0.4% by weight vitamin C.

16. The food product of claim 15, further comprising 0.04 to 0.08% by weight vitamin C.

17. The food product of claim 4, further comprising 0.8 to 22% by weight fiber.

REP	US 3764692	Oct 1973	424279000	Lowenstein
	US 4275234	Jun 1981	562584000	Baniel et al.
	US 4522836	Jun 1985	426271000	Dechow et al.
	US 4643902	Feb 1987	426271000	Lawhon et al.
	US 5536516	Jul 1996	426271000	Moffett et al.
	EP 49429	Apr 1982		
	IN 160753	Aug 1987		

REN ''Citrimax Brochure'', Interhealth Company 2 pages, 1994.
Clouatre et al., ''The Diet and Health Benefits of HCA (Hydroxycitric Acid)'', A Good Health Guide pp. 1-48, Copyright 1994.
Greenwood et al., ''Effect of (-)-hydroxycitrate on Development of Obesity in the Zucker Obese Rat'', American Physiological Society E72-E78, 1981.
Lewis et al., ''(-)-Hydroxycitric Acid-The Principal Acid In The Fruits of Garcinia Cambogia Desr.'', Phytochemistry 4:619-625, 1965.
Majeed, et al., ''Citrin A Revolutionary, Herbal Approach to Weight Management'', New Editions Publishing, 1-69, 1994.

Panksepp et al., ''(-)-Hydroxycitrate and Conditioned Aversions'', Pharmacology Biochemistry & Behavior 6:683-687, 1977.
Steven Foster, ''On Herbs Garcinia Cambogia'', Health Foods Business p. 27, 1994.
Sullivan et al., ''Effect of (-)-Hydroxycitrate Upon the Accumulation of Lipid in the Rat: I. Lipogenesis'', Lipids 9:121-128, 1973.
Sullivan et al., ''Effect of (-)-Hydroxycitrate Upon the Accumulation of Lipid in the Rat: II. Appetite'', Lipids 9:129-134, 1973.
Sullivan et al., ''Mechanisms of Appetite Modulation by Drugs'', Fed. Proc. 44:139-144, 1985.
Y. S. Lewis, ''Isolation and Properties of Hydroxycitric Acid'', Methods in Enzymology 13:613-619, 1967.

NCL NCLM: 426271000
NCLS: 426333000; 426549000; 426599000; 426616000; 426655000
IC ICM: A23L002-78
EXF 426271000; 426333000; 426549000; 426599000; 426616000; 426655000
ARTU 132

L87 ANSWER 4 OF 5 IFIPAT COPYRIGHT 1999 IFI
AN 2740168 IFIPAT;IFIUDB;IFICDB
TI **HYDROXYCITRIC** ACID CONCENTRATE AND FOOD PRODUCTS PREPARED THEREFROM
INF Bhandari, Ashok K, Bangalore, IN
Moffett, Scott A, Beverly Hills, CA
Ravindranath, Bhagavathula, Bangalore, IN
IN Bhandari Ashok K (IN); Moffett Scott A; Ravindranath Bhagavathula (IN)
PAF Renaissance Herbs, Inc, Beverly Hills, CA
Vittal Mallya Scientific Research Foundation, Bangalore, IN
PA Renaissance Herbs Inc (39308)
Vittal Mallya Scientific Research Foundation IN (39321)
EXNAM Pratt, Helen
AG Fish & Richardson
PI US 5536516 19960716 (CITED IN 001 LATER PATENTS)
AI US 94-295281 19940824
XPD 24 Aug 2014
FI US 5536516 19960716
DT UTILITY
FS CHEMICAL
MRN 7967 MFN: 0564
7983 0845
AB A process of enriching hyroxycitric acid (HCA) from **Garcinia** rind in which a salt-free water extract of **Garcinia** rind is loaded onto an anion exchange column, eluted with a metal hydroxide for release of HCA. The water-extract is then treated with a cation exchange column to make free HCA as a free acid. The water extract is loaded at a capacity of 100 to 125% of the anion exchange column and at a capacity of 50 to 90% of the cation exchange column. The HCA can be added to food products such as beverages and snack bars.
CLMN 10
ECLM 1. A process of enriching **hydroxycitric** acid from **Garcinia** rind comprising: (1) obtaining a salt-free water extract of said **Garcinia** rind, (2) loading said extract onto an anion exchange column for adsorption of said **hydroxycitric** acid onto said anion exchange column, (3) eluting said **hydroxycitric** acid from said anion exchange column with a Group IA metal hydroxide for release of said **hydroxycitric** acid as a metal salt in a first solution, and (4) loading said first solution onto a cation exchange column for collection of said **hydroxycitric** acid as a free acid in a second solution; wherein said water extract is loaded at a capacity

of 100 to 125% of said anion exchange column and at a capacity of 50 to 90% of said cation exchange column.

ACLM 2. The process of claim 1, wherein said water extract is loaded at a capacity of 105 to 115% of said anion exchange column.
3. The process of claim 2, wherein said first solution is loaded at a capacity of 60 to 75% of said cation exchange column.
4. The process of claim 1, wherein said first solution is loaded at a capacity of 60 to 75% of said cation exchange column.
5. The process of claim 1, wherein said Group IA metal hydroxide is NaOH or KOH.
6. The process of claim 1, wherein said salt-free water extract is prepared by first extracting salted **Garcinia** rind and subsequently removing salt with a water miscible organic solvent.
7. The process of claim 6, wherein said solvent is acetone or ethyl alcohol.
8. The process of claim 1 after step (4) further comprising reducing the volume of said second solution to form a **hydroxycitric** acid concentrate and adding said concentrate to a food product.
9. The process of claim 8, wherein said food product is a beverage.
10. The process of claim 8, wherein said food product is a snack bar.

REP

US 3764692	Oct 1973	424279000	Lowenstein
US 4275234	Jun 1981	562584000	Baniel et al.
US 4522836	Jun 1985	426271000	Dechow et al.
US 4643902	Feb 1987	426271000	Lawhon et al.
EP 49429	Apr 1982		
IN 160753	Aug 1987		

REN ''Citrimax Brochure'', Interhealth Company 2 pages, 1994.
Clouatre et al, ''The Diet and Health Benefits of HCA (Hydroxycitric Acid)'', A Good Health Guide pp. 1-48, Copyright 1994.
Greenwood et al., ''Effect of (-)-hydroxycitrate on Development of Obesity in the Zucker Obese Rat'', American Physiological Society 1981.
Lewis et al., ''(-)-Hydroxycitric Acid-The Principal Acid In The Fruits of Garcinia Cambogia Desr.'', Phytochemistry 4:619-625, 1965.
Majeed, et al., ''Citrin A Revolutionary, Herbal Approach to Weight Management'', New Editions Publishing, 1-69, 1994.
Panksepp et al., ''(-)-Hydroxycitrate and Conditioned Aversions'', Pharmacology Biochemistry & Behavior 6:683-697, 1977.
Steven Foster, ''On Herbs Garcinia Cambogia'', Health Foods Business p. 27, 1994.
Sullivan et al., ''Effect of (-)-Hydroxycitrate Upon the Accumulation of Lipid in the Rat: I. Lipogenesis'', Lipids 9:121-128, 1973.
Sullivan et al., ''Effect of (-)-Hydroxycitrate Upon The Accumulation of Lipid in the Rat: II. Appetite'', Lipids 9:129-134, 1973.
Sullivan et al., ''Mechanisms of Appetite Modulation by Drugs'', Fed. Proc. 44:139-144, 1985.
Y. S. Lewis, ''Isolation and Properties of Hydroxycitric Acid'', Methods in Enzymology 13:613-619. 1967.

NCL NCLM: 426271000
NCLS: 426072000; 426333000; 426549000; 426590000; 426599000; 426615000; 426655000

IC ICM: A23L002-78

EXF 426072000; 426271000; 426333000; 426549000; 426590000; 426599000; 426616000; 426655000

ARTU 132

L87 ANSWER 5 OF 5 IFIPAT COPYRIGHT 1999 IFI
AN 0813401 IFIPAT;IFIUDB;IFICDB
TI METHOD OF TREATING OBESITY
INF Lowenstein, John M, Wellesley Hills, MA

IN LOWENSTEIN J
PAF Hoffmann-La Roche Inc, Nutley, NJ
PA HOFFMANN-LA ROCHE INC (39424)
EXNAM Meyers, Albert T
EXNAM Drezin, Norman A
AG Epstein, William H
Gould, George M
Leon, Bernard S
Saxe, Jon S
Welt, Samuel L
LREP Krubiner, Alan M
PI US 3764692 19731009 (CITED IN 003 LATER PATENTS)
AI US 70-77042 19700930
XPD 9 Oct 1990
RLI US 69-872413 19691029 CONTINUATION-IN-PART ABANDONED
FI US 3764692 19731009
DE 2052131
FR 2070174
GB 1311015
DT UTILITY
FS CHEMICAL
OS CA 75:67483
AB The inhibition of fatty acid synthesis is obtained in biological systems by utilizing a specific stereoisomer of **hydroxycitric** acid and derivatives thereof such as esters or lactones and the non-toxic salts of these compounds. It is believed that the present method involves the inhibition of citrate cleavage enzyme. Inhibition of fatty acid synthesis by the present method is useful in the treatment of obesity.
CLMN 12
ECLM THE INHIBITION OF FATTY ACID SYNTHESIS IS OBTAINED IN BIOLOGICAL SYSTEMS BY UTILIZING A SPECIFIC STEROISOMER OF **HYDROXYCITRIC** ACID AND DERIVATIVES THEREOF SUCH AS ESTERS OR LACTONES AND THE NON-TOXIC SALTS OF THESE COMPOUNDS. IT IS BELIEVED THAT THE PRESENT METHOD INVOLVES THE INHIBITION OF CITRATE CLEAVAGE ENZYME. INHIBITION OF FATTY ACID SYNTHESIS BY THE PRESENT METHOD IS USEFUL IN THE TREATMENT OF OBESITY.
ACLM 2. The method of claim 1 wherein **garcinia** acid is administered.
3. The method of claim 1 wherein **garcinia** acid lactone is administered.
4. The method of claim 1 wherein an ester of **garcinia** acid or **garcinia** lactone is administered.
5. The method of claim 4 wherein said ester is a lower alkyl ester.
6. The method of claim 1 wherein the compound is administered in the range of from about 1 to about 25 mg/kg per day.
7. A pharmaceutical composition for the treatment of obesity comprising a pharmaceutical carrier and an effective amount of a compound selected from the group consisting of **garcinia** acid, **garcinia** acid lactone, mono-, di- and tri-lower alkyl, phenyl and benzyl esters of **garcinia** acid, mono- and di-lower alkyl, phenyl and benzyl esters of **garcinia** acid lactone, wherein lower alkyl is from one to seven carbon atoms, and non-toxic pharmaceutically acceptable basic salts thereof.
8. The composition of claim 7 wherein said compound is **garcinia** acid.
9. The composition of claim 7 wherein said compound is **garcinia** acid lactone.
10. The composition of claim 8 wherein said compound is an ester of **garcinia** acid or **garcinia** acid lactone.
11. The composition of claim 10 wherein said ester is a lower alkyl ester.

12. The composition of claim 7 wherein said compound is present in the range of from about 15 to 600 mg.

REN Chemical Abstracts 60: 13800 b
Chemical Abstracts 63: 16775 g
Chemical Abstracts 65: 9373 a
Chemical Abstracts 67: 69394 G
Chemical Abstracts 70: 105772 b
Merck Manual, 11th Edition, 1966 pp. 307-311

NCL NCLM: 514449000
NCLS: 514533000; 514547000; 514574000; 514909000

IC ICM: A61K027-00

EXF 424279000; 424313000; 424317000

ARTU 125

RN 4272-10-0; 25763-47-7; 34401-78-0; 34401-79-1; 34401-80-4

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FILES 'USPATFULL, CAPLUS, PROMT, EUROPATFULL, FROSTI, NLDB, WPIDS, FSTA, TOXLIT,
ADISALERTS, BIOBUSINESS, CABA, CIN, EMBASE, NAPRALERT, PHIN'
ENTERED AT 13:13:07 ON 14 MAY 1999

16 FILES IN THE FILE LIST

L4 ANSWER 1 OF 51 COPYRIGHT 1999 IAC

AN 97:152236 NLDB
TI Looking for quick and easy losses
SO OTC Update, (1 Mar 1997), No. 83.
PB Nicholas Hall & Company
DT Newsletter
LA English
WC 3529
TX Americans' obsession with shedding pounds has fattened up the market as consumers continue to seek out that "magic pill." Looking for instant gratification and long-term weight maintenance, weight-conscious adults will try almost anything at least once -- from cabbage soup diets to meal replacement shakes and powders. However, hope springs eternal with Wyeth-Ayerst's launch of Redux (dexfenfluramine) for the long-term, Rx treatment of **obesity**. See related story on page 74. Meanwhile, sales of OTC weight-loss aids in the US and Canada have increased to $93 5ran. Sales of diet candies/tablets/gums/drops remained stable, whilst sales of meal replacement shakes and drinks have increased significantly, reflecting consumers' comfort levels with these products.

One out of every three American adults, or 33 % of the adult population, is overweight, according to the National Center for Health Statistics. The standard used to define overweight is a body mass index, or BMI, of 27.8 for adult males and 27.3 for adult females (see table 1). Being obese -- having a BMI of 30 or higher -- contributes to illness and death as those who are obese have increased rates of diabetes, high blood pressure, heart disease, arthritis, lung disorders and certain forms of cancer. A study published in the Journal of the American Medical Association found that at least 300,000 Americans die prematurely each year from "poor diet/inactivity." In addition, overweight people often are socially shunned and experience job discrimination.

TABLE 1 USA: BMI

CALCULATING BODY MASS INDEX

* Multiply your weight in pounds by 700

* Divide this total by your height in inches

Searcher: Dilip 308-4268

* Divide again by your height

Source: OTC UPDATE based on data from The National Women's Health Report

Financial toll

Obesity has taken a financial toll on the health care system as well. The Institute of Medicine has calculated the health care cost of **obesity** to be more than $70bn annually. This figure includes direct costs such as hospital care and physician services, as well as lost productivity caused by death and disability from weight-related diseases. "We know that the poorest people in our country have a much greater prevalence of **obesity** (especially black and Hispanic women) than do the more affluent," says Barbara Moore, president and CEO of Shape Up America!, a non-profit organization founded by C. Everett Koop, former US Surgeon General (see table 2, p74). "It is hard to estimate what impact this has on health care delivery. It seems reasonable to assume that those most affected are least able to pay for the heart disease, diabetes and hypertension that develop as a consequence of **obesity**."

Shape Up America! and the American **Obesity** Association have released the Guidance for Treatment of Adult **Obesity**. It assists physicians in assessing patients' health risks from **obesity** and determining appropriate treatment options. "A disturbing dieting trend of 1996 is the re-emergence of high-protein/high-fat diets," says Moore. "Hopefully, Americans will begin to understand that physical activity is a fundamental key to good health and weight management. The data show that if you don't want to gain weight (or you don't want to regain lost weight), then physical activity is the strategy to help you accomplish that goal."

TABLE 2 USA: OVERWEIGHT PERSONS

#	INCIDENCE OF OVERWEIGHT	
#	20-74 years old*	1988-91
#	Male	33 %
#	Female	34%
#	White Male	33 %
#	White Female	33 %
#	Black Male	32%
#	Black Female	49%

Searcher: Dilip 308-4268

*The race groups, white and black, include persons of

Hispanic and non-Hispanic origin; figures exclude

pregnant women. Source: OTC UPDATE based on data from the National

Center for Health Statistics

Planning meals

As Americans use diet warfare as a weapon in the battle against the bulge, they have also become less stringent in planning their meals. In a nationwide study, the NPD Group, a market research firm, found that in 1996 only 37 % of the population agrees with the statement: "I carefully plan my household meals to be sure they are nutritious." This figure has fallen from 47% in 1990, and coincides with the increase in respondents (58%) who consume a diet that is fat-free, but not necessarily balanced.

"With the percentage of the population who say they eat a low-fat diet increasing, people believe they are eating the right products and therefore they've taken care of providing the right foods," says Harry Balzar of NPD Group. Meanwhile, the number of dieters has remained stable -- 33% of females and 23% of males -- for the past five years. "The number of dieters continues to remain a large market, but it is not growing," says Balzar.

As many as 75% of women dieting today in the US don't need to lose weight for medical reasons. For those individuals for whom 5-10 extra pounds is annoying, but not life-threatening, traditional weight reduction strategies remain the safest and most effective bet: reduce fat intake and modify other eating habits, exercise regularly and be realistic about ideal weight goals, according to the National Women's Health Report. For those with a BMI of at least 30, treatment with Rx medications is another option.

"Magic pill" aids dieters:

Has the magic pill arrived for the 58ran adult Americans who are overweight? For the first time in more than 20 years, the Food and Drug Administration (FDA) approved a new Rx weightloss drug -- dexfenfiuramine. Developed by Interneuron Pharmaceuticals and marketed by Wyeth-Ayerst (AHP) under the brand name Redux, it is the only product indicated for the management of **obesity**, including weight loss and long-term maintenance. Redux has been approved for one year of use; its safety and efficacy beyond that time period has not been determined.

Decreased appetite

Dexfenfluramine causes the release of serotonin, a neurotransmitter in the brain that generates feelings of contentment and satiety. Redux, administered in 15mg capsules to be taken twice daily, has been associated with decreased appetite and may make people feel full and lessen their desire to eat. It is recommended for obese patients with a BMI of 30, or a

BMI of 27 combined with other risk factors such as hypertension or diabetes.

In a one-year clinical trial of more than 900 patients, individuals taking Redux in conjunction with a reduced-calorie diet lost significantly more weight than patients on the diet and a placebo. Redux helped produce a significant reduction in weight during the first four to six months. This response was maintained during year-long therapy. At the end of the year, 64% of all patients lost at least 5% of their initial total weight; 40% lost at least 10%; and 21% lost at least 15%.

Side-effects

Questions remain, however, concerning the sideeffects of Redux. The most commonly reported side-effects in clinical trials included drowsiness, diarrhea and dry mouth, which were usually mild and disappeared in a few weeks. More serious was the low incidence of a rare, serious and lifethreatening cardiopulmonary disorder, primary pulmonary hypertension (PPH). The FDA recently changed Redux' labeling to include PPH.

In addition, when high doses of Redux were given to animals for short periods of time at brain concentrations approximately 10 times those seen in humans, neurochemical changes were observed. These changes were generally reversed over time, but persisted for more than one year in one study of three animals.

The importance of these findings to humans is not known, but as the long-term effects of Redux become more apparent, they may affect the viability of the Rx weight-loss market. Wyeth-Ayerst markets Redux to primary care physicians, including family practice and general practice physicians, who write three-quarters of all Redux prescriptions. It is also marketed to specialists such as:

* bariatricians (**obesity** specialists)

* endocrinologists

* diabetologists (because they treat patients

with **obesity**-related issues)

* psychiatrists

* cardiologists

* obstetricians and gynecologists (because many women view these doctors as their primary care physician, and many obese patients are advised to lose weight prior to getting pregnant)

As of December 1996, 2.3ran prescriptions for Redux had been written since its launch in June 1996. Wyeth-Ayerst soon will be facing competition from other marketers, as they attempt to jump into the long-term weight-loss category. Recently, Knoll Pharmaceuticals received an approvable letter from the FDA to market Meridia (sibutramine hydrochloride monohydrate) for the treatment of **obesity**. Other marketers testing new drugs for **obesity** include Millennium Pharmaceuticals and Amgen.

APPETITE SUPPRESSANTS & DIET AIDS

Searcher: Dilip 308-4268

Food, drug and mass merchandise sales of diet candy/tablets/gum/drops were flat at $138.5mn in 1996. Dexatrim remains the market leader with the top four SKU's in the category and sales of $32.8mn (fig 1, p76). However, the brand experienced a decline in sales of 15%, compounded by losses of 18% in 1995. Thompson Medical attributes the loss to increased competition from new entries in the dietary supplements category, many of which are referred to as "fat burner." Thompson did not introduce any new products last year to fight these "fat burners," believing that dollar shares of these products have begun to show declines.

In spite of the tough competition, Thompson decreased its overall adspend for the brand. Dexatrim capsules were supported with $5.3mn in adspend for the 12 months to November 1996, down by 5%, according to Competitive Media in this report. Thompson offers four products, Caffeine-Free Dexatrim with Vitamin C Caplets, Caffeine-Free Dexatrim Caplets, Caffeine-Free Dexatrim Extended Duration Tables and Caffeine-Free Dextrim Plus Vitamins.

All formulations are offered in maximum strength. Dexatrim is targeted at women, ages 1849 years old, and is advertised on national network and cable television. The company also maintains that the popularity of new Rx diet drugs will have a positive effect on Dexatrim, as they add credibility to - and a new acceptance of- diet drugs overall. "Since Rx diet pills are supposed to be prescribed to patients who are seriously overweight, Dexatrim offers an excellent nonprescription alternative for those people who are not obese, but still have weight to lose," says Alison Mann, group product manager.

Sales of the other traditional OTC diet aid, Acutrim, declined by 24% to $7.7mn in 1996. Support for the brand was decreased to less than $2mn and no new formulations were introduced. Novartis is restructuring its OTC products lineup and has offered the brand for sale. "Clearly it is a strong product with a solid brand name," says Eric Jackson, director of public affairs and communications. "Acutrim's decrease in sales is a function of the company's strategy to focus elsewhere." As of midFebruary, significant interest had been shown in the portfolio of 14 brands Novartis offered for sale, but no deal had been finalized, says Jackson.

The active ingredient in Dexatrim and Acutrim, phenylpropanolamine (PPA), has been under scrutiny by the FDA, as the agency reviews PPA's safety claims. The Nonprescription Drug Manufacturers Association (NDMA) supports additional labeling for PPA-containing weight control OTCs, although both the FDA and the NDMA agree that available information does not demonstrate a substantial public health risk. PPA's efficacy for reducing food intake is generally accepted, yet PPA-based weightloss aids have had difficulty competing with treatments that make claims of changing metabolism or helping to burn body fat.

Gaining mass market distribution

Cybergenics' weight-loss aids, with names such as Quick Trim and Walk & Trim, are widely distributed in health food stores, as are AmeriFIT's Fat Burners. AmeriFIT attributes its product's success to monitoring of the latest scientific studies, as well as intense tracking of consumer trends

and preferences through the use of small focus groups. Sales of Fat Burners in food, drug and mass merchandise outlets remained stable at $8.2mn. Brands that were once limited to health food store distribution only are creeping into the mainstream.

An informal OTC UPDATE survey of chain drug stores in New York City showed shelves stocked with Richardson Laboratories' Chroma-Slim and CitraLean weight-loss aids containing chromium picolinate (see related story, p78). Both products contain CitriMax, a dietary ingredient promoted by supermodel Kim Alexis. Other marketers included Nature's Resource and Great American Nutrition.

MEAL REPLACEMENTS

Meal replacements are experiencing double-digit growth, as consumers' attitudes toward these weight-loss aids are changing. Television and print promotions have capitalized on the increased demand for formulas positioned as nutritional supplements, rather than as diet aids. In addition, the aging US population's obsession with staying young and fit has added to these brands' popularity.

Sales of weight-control/protein supplements grew by 12% to $729mn. Consequently, growth appears to be attributable to new product introductions, crossover into mainstream distribution and PL growth, as each leading marketer's share of the category declined slightly (fig 2). Ross holds a commanding lead, albeit down slighdy from 47% in 1995. Sales of Ensure increased by 4% to $167.7mn, while sales of Ensure Plus fell by nearly 10% to $128mn. Facing increased competition, Ross increased its adspend for the brand in 1996, with Ensure receiving $45.9mn and Ensure Light $13.5mn.

Freshness dating

Sales of Ultra Slim Fast declined by 10% in 1996 to $155.9mn, following a 19% fall in 1995. The marketer attempted several innovative marketing campaigns fortified with $43.6mn in adspend, which may have staved off even further losses. Last year it introduced the "One Shake a Day" program, as opposed to its promotion of a shake for breakfast, shake for lunch and a sensible dinner. In addition, Slim Fast Foods introduced a "use-by date" on its packaging, indicating clearly its freshness. This reflects consumers' increased tendency to look at the products as meals, rather than as supplements. Ultra SlimFast was reformulated with an improved taste and was also relabeled with five governmentapproved RDA's, including selenium and chromium.

In May, the company will be launching the Slim Fast Jump Start 'kit, guaranteeing a five-pound weight loss within five days. The $20 program will include high-protein shakes, a suggested menu guide and coupons for Slim*Fast foods and a money back guarantee. The aim is to target two types of dieters: those who want to lose a quick five pounds for an upcoming event and those who have difficulty maintaining a diet program if they don't see immediate results, according to Mark Covent of Slim Fast Foods.

Nestle Sweet Success retains its positioning as the chocolate lover's way to diet, but it too has felt the pinch of increased competition as sales declined by 13 % to $49.5mn. Ongoing support for the brand is questionable, as Nestle capped adspend for the brand in 1996 at $2.6mn, down from $23mn in 1995. On the other hand, Mead Johnson spent an impressive $29.8nm on Boost in its first full year on the market. Consequently, sales increased by more than 5% to $32.8mn.

Searcher: Dilip 308-4268

WEIGHT LOSS CENTE[redacted]

The $1.9bn weight-loss centers market continues to grow in scope and breadth as marketers embrace Rx diet aids and consumer trends. The grandmother of them all, 34-year-old Weight Watchers, generated sales of $1.6bn in meeting memberships and food products, according to Marketdata Enterprises, a market research firm located in Tampa, Florida.

John LaRosa, president of Marketdata, estimates that onethird of those sales, or $533 mn, was gained through meeting memberships alone (fig 3, p79). Nearly 85% of dieters who frequent weight-loss centers are women, according to LaRosa. More specifically, she is a 34-year old, married woman who has 15-20 pounds to lose. Weight Watchers has capitalized on this statistic with the introduction of its "New Freedom Plan." The weight loss company simplified its dieting program to emphasize stress-free, energy-reducing, family-oriented meals, according to Linda Carilli, a spokesperson for Weight Watchers International.

Weight Watchers has added fruits to its list of "all you can eat" foods, the "Weekend Freedom Option," which allows for little indulgences on the weekends, and "Family-Friendly" meals that require a modicum of effort, yet keep members on track with their weight loss. Morns don't have to prepare a "regular" meal for the family and a low-calorie meal for themselves.

Jenny Craig has identified the popularity of weightloss medications as the most significant trend of 1996, says company spokesperson, Brian Luscomb. As a result, Jenny Craig added an adjunct to its weight management program in December that utilizes weight-loss medications. The new program component, called Select, employs a nationwide network of independently-contracted physicians to examine clients and prescribe weight-loss medications to those who qualify. Celebrity spokesperson Cindy Williams is featured in TV advertising for Jenny Craig in video shots that show before and after film of the actress, as she acknowledges her successful fight to lose weight.

Chromium picolinate slims body composition

One of the hottest phenomenons in the "natural" weight-loss industry is the emergence of products containing chromium, a trace mineral found in grains and seafood. Studies have shown that chromium picolinate supplements may aid in losing fat, maintaining muscle-lowering total cholesterol while raising "good" HDL cholesterol, and increasing insulin efficiency. Nutrition 21, exclusive distributor of the supplement, introduced chromium picolinate in 1989.

Nutrition 21 clearly disavows the claim that chromium picolinate is a magic bullet for rapid weight loss. Rather, the mineral should be used in conjunction with other sensible health practices such as moderating the intake of calories and increasing exercise. Based on current data that shows chromium picolinate's effect on increasing lean mass while reducing fat, the company emphasizes the supplement's ability to improve body composition rather than shed pounds. "if you use chromium picolinate for rapid weight loss, you'll be disappointed," says Mark McCarty, vice president of R&D.

There are more than 1,000 different retail products that use chromium

picolinate as a featured ingredient. They range from beverages to fortified foods, [redacted] power bars to tablets -- even [redacted] chewing gum. Body Ammo Nutraceutica[redacted] offers Body Ammo DHEA Gum Foun[redacted]n of Youth Weight Loss Formula with 200mg of chromium picolinate per piece. Introduced to health food stores in the summer of 1996, the gum is promoted at gyms and through a sampling program. Advertising states: "Chew away pounds and years"

Nutrition 21 promotes chromium picolinate through one-on-one marketing efforts with its distributors that include merchandising displays and a radio and print media consumer advertising campaign that includes USA Today Weekend, Prevention, People and Parade magazines. "About 15% of our total revenues are plowed back into the consumer industry," says Rick Kaiser, vice president of sales. This year, the company will shift its promotional focus from consumers to the medical community and managed care organizations.

Although the company wouldn't comment on retail sales, it has been reported that its sales of chromium picolinate are as high as $100mn. The future looks bright for the supplement. "There are more than

80 studies addressing the properties of chromium picolinate and the variety of potentially positive impacts the supplement will have," says McCarty. "We are currently at the early stages of defining them, and we are confident that as we gain more knowledge on the impact and dosage dependency, we will be able to use chromium picolinate to promote health in many ways."

Perfect fit

According to Luscomb, both Redux (dexfenfluramine) and the Phen-Fen combo (phentermine-fenfluramine) are being prescribed. He adds that these new Rx treatments are a perfect fit to Jenny Craig's weight-loss management program, as the core of its program encompasses a reduced-calorie diet, regular exercise and behavior modifications for long-term success.

Nutri/System's spin-off, NutriRx, offers an Rx appetite suppressant therapy combined with Nutri/ System's weight-management products and services. The NutriRx program also offers the option of Phen/Fen or Redux.

The program includes prescription weight loss therapy, medical examination and assessment, professional supervision, wellness information, at-home services and optional low-fat foods and menus. "In the upcoming year, consumer interest in Rx diet medications will continue," says LaRosa. "Any weight-loss company that doesn't offer them definitely will feel the pinch."

Sales in the Canadian weight loss market reflect the trends of its southern neighbor. Decreased consumer demand for OTC diet aids was neutralized by increased demand for meal replacements. Combined total sales of the two categories are estimated at C$90mn (US$67.5mn).

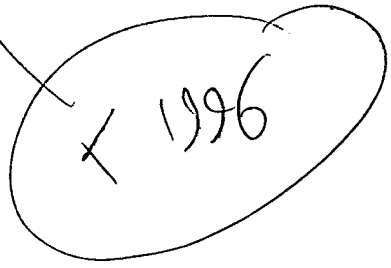
Meal replacement bars and powdered drinks claim the most sales in this market, contributing almost 80% of turnover (fig 4, p80). Stella Pharmaceutical's Slim Fast continues to dominate the weight-loss component of the meal replacement/nutritional supplements category, according to Brenda Embree, director of marketing. Stella reports that Dexatrim is the best-selling appetite suppressant. The company also markets Appedrine and

Slim Mint Gum. Together, these three brands accounted for approximately 80% of sales of diet aid pills. Stella launched two new Dexatrim products in 1996: Dexatrim with **Garcinia** Cambogia and Dexatrim with Niacin-Bound Chromium. Both products are being promoted through print media.

Jamieson markets nutritional supplements specifically for natural weight management, and the company reports healthy sales growth in 1996. The company's herbal brand, Slim Down, contains the key ingredient malabar tamarind, fruit of the **garcinia** cambogia tree, which the company says, contains an acid that converts carbohydrates into glycogen instead of fat. Jamieson reports that sales of Slim Down more than doubled in 1996. Comprised of two products, Slim Down Fibre and Slim Down Weight Management IGt, the brand is promoted through couponing and advertising in drug, health, food and mass merchandise outlets. Jamieson is awaiting the completion of a clinical trial review and acceptance by the Health Protection Branch for a natural fat-absorbing and fiber ingredient. When this occurs, the company plans to launch a new product line in late 1997.

Subscription: $1195 per year as of 1/92. Published monthly. Contact Nicholas Hall & Company, 35 Alexandra Street, Southend-on-Sea, Essex, SS1 1BW, UK. Phone 7-02-433-422. FAX 7-02-430-787.

CT MH Medical and Health; PG Packaged Goods



Victor Oh

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16 FILES IN THE FILE LIST

L1 QUE GARCINIA (L) OBESITY
L2 62 SEA L1
L3 51 DUP REM L2 (11 DUPLICATES REMOVED)
L4 51 SOR L3 PY

YOU HAVE REQUESTED DATA FROM 51 ANSWERS - CONTINUE? Y/(N):y

L4 ANSWER 1 OF 51 COPYRIGHT 1999 IAC

AN 97:152236 NLDB
TI Looking for quick and easy losses
SO OTC Update, (1 Mar 1997) No. 83.
PB Nicholas Hall & Company
DT Newsletter
LA English
WC 3529

L4 ANSWER 2 OF 51 COPYRIGHT 1999 IAC

AN 1999:36915 NLDB
TI Indian form of HCA improves weight.
SO Nutraceuticals International, (Sep 1998) .
ISSN: 1362-5411.
PB Marketletter Publications Ltd.
DT Newsletter
LA English
WC 247

L4 ANSWER 3 OF 51 COPYRIGHT 1999 IAC

AN 1999:15103 NLDB
TI Garcinia cambogia compound found to be ineffective for weight loss.
SO Nutraceuticals International, (Dec 1998) .
ISSN: 1362-5411.
PB Marketletter Publications Ltd.
DT Newsletter
LA English
WC 369

L4 ANSWER 4 OF 51 COPYRIGHT 1999 IAC

AN 1998:283966 NLDB
TI Herbals, vitamins featured in JAMA issue devoted to alternative medicine.

Victor Oh

SO Food Chemical News, (23 Nov 1998) Vol. 40, No. 40.
ISSN: 0015-6337.
PB Food Chemical News, Inc.
DT Newsletter
LA English
WC 573

L4 ANSWER 5 OF 51 COPYRIGHT 1999 IAC

AN 1998:278047 NLDB
TI Herbals, vitamins featured in JAMA issue devoted to alternative medicine.
SO Food Labeling News, (11 Nov 1998) Vol. 7, No. 5.
ISSN: 1064-6329.
PB Food Chemical News, Inc.
DT Newsletter
LA English
WC 578

L4 ANSWER 6 OF 51 WPIDS COPYRIGHT 1999 DERWENT INFORMATION LTD
AN 1971-30196S [17] WPIDS
TI Medicaments contg garcinia acid or its - derivs.
DC B03 B05
PA (HOFF) HOFFMANN LA ROCHE & CIE SA F
CYC 7
PI BE-758122 A (7117)*
DE2052131 A (7119)
NL7015348 A (7119)
ZA7006931 A (7131)
FR2070174 A (7149)
GB1311015 A (7312)
CA-923425 A (7315)
PRAI 69US-0872413 691029; 70US-0077042 700930
AB BE 758122 A UPAB: 19930831
Title medicaments contg. **garcinia** acid ((-) hydroxy citric acid) or a deriv. e.g. its lactone, ester, or salt, are useful as inhibitors of fatty acid formation and hence in the treatment of **obesity** and lipid metabolism anomalies. Medicaments cont 15-600 mg (I). Derivs. are prepd. by standard methods from the acid. Medicaments are in standard form for enteral and parenteral administration.

L4 ANSWER 7 OF 51 FROSTI COPYRIGHT 1999 LFRA
AN 411929 FROSTI
TI (-)-Hydroxycitrates.
AU Verghese J.
SO World of Ingredients, 1996, (March-April), 38-40 (83 ref.)
DT Journal
LA English
AB The (-)-hydroxycitric acid isomer is known to be a metabolic regulator of **obesity**. The main sources are the fruits of **Garcinia** cambogia (Desr) (also called kodumpulli or Malabar tamarind), and **Garcinia** indica Choisy (also called kokam), which grow in India and Sri Lanka. The physiological mechanisms for the effect of (-)-hydroxycitrates on **obesity** are discussed. Their action appears to be by inhibiting lipogenesis, decreasing appetite, and

increasing thermogenesis. The potential for using these compounds in formulations for the control of **obesity** is considered.

L4 ANSWER 8 OF 51 FROSTI COPYRIGHT 1999 LFRA
AN 461936 FROSTI
TI The spice of life. (Garcinia cambogia spice extract.)
AU Anon.
SO Food Ingredients and Analysis International, 1997, (November-December), 19 (6), 45-46+49 (11 ref.)
DT Journal
LA English
AB The dried fruits of **Garcinia** cambogia are used as a spice in southern India where the fruit is known as Malabar Tamarind. The spice has been shown to be useful in controlling **obesity** because it increases fat metabolism and promotes satiety. This article describes the production, health benefits (including metabolism), applications and recommended daily intakes of the spice.

L4 ANSWER 9 OF 51 FROSTI COPYRIGHT 1999 LFRA
AN 486408 FROSTI
TI Garcinia cambogia (hydroxycitric acid) as a potential antiobesity agent: a randomized controlled trial.
AU Heymsfield S.B.; Allison D.B.; Vasselli J.R.; Pietrobelli A.; Greenfield D.; Nunez C.
SO Journal of the American Medical Association, 1998, (November 11), 280 (18), 1596-1600 (32 ref.)
ISSN: 0098-7484
DT Journal
LA English
SL English
AB **Obesity** and its associated health risks pose a growing problem. The use of herbal weight-loss problems is increasing. Hydroxycitric acid is the active ingredient in the herbal compound **Garcinia** cambogia, which is claimed to reduce body weight and fat mass in humans. A study was conducted to evaluate the effectiveness of G. cambogia for weight loss and fat mass reduction in 135 overweight humans. The participants were assigned to receive either hydroxycitric acid or a placebo for 12 weeks. Both groups consumed a high-fibre, low-energy diet.
There were no significant differences in body weight loss and body fat mass loss between the two groups, indicating that the herb G. cambogia is
not effective for promoting weight loss.

L4 ANSWER 10 OF 51 FROSTI COPYRIGHT 1999 LFRA
AN 471956 FROSTI
TI Determination of organic acids in Garcinia cambogia (Desr.) by high-performance liquid chromatography.
AU Jayaprakasha G.K.; Sakariah K.K.
SO Journal of Chromatography A, 1998, (May 15), 806 (2), 337-339 (8 ref.)
DT Journal
LA English
SL English
AB The major organic acid in **Garcinia** cambogia (Malabar tamarind) is (-)-hydroxycitric acid (HCA). HCA has been shown to be a potent metabolic regulator of **obesity** and lipid abnormalities in

mammalian systems. The antiobesity potency of HCA has been clinically screened and confirmed. The existing assay method for HCA in fruit of Malabar tamarind consists of titration of fruit extract against standard sodium hydroxide. This method has the limitation of interference by other organic acids present in samples. A simple and versatile HPLC method for determination of HCA in Malabar tamarind fruit is described. HCA was determined to be present in concentrations of 16-18% using HPLC with sulfuric acid as eluent. Citric and malic acids were found to be present in Malabar tamarind in minor quantities.

L4 ANSWER 11 OF 51 EUROPATFULL COPYRIGHT 1999 WILA

PATENT APPLICATION - PATENTANMELDUNG - DEMANDE DE BREVET

AN 787489 EUROPATFULL ED 19970820 EW 9732 FS OS
TIEN Composition containing L-carnitine or alkanoyl-L-carnitine and hydroxycitric acid or pantothenic acid.
TIDE Zusammensetzungen enthaltend L-Carnitin oder Alkanoyl-L-Carnitine und Hydroxyzitronensaeure oder Pantothensaeure.
TIFR Compositions contenant L-carnitine ou alkanoyl-L-carnitine et l'acide hydroxycitrique ou l'acide pantothenique.
IN Cavazza, Claudio, Piazza Campitelli, 2, 00186 Roma RM, IT
PA Sigma-Tau Industrie Farmaceutiche Riunite S.p.A., Viale Shakespeare, 47,
00144 Roma, IT
PAN 255110
AG Cavattoni, Fabio et al, Cavattoni & Raimondi Viale dei Parioli, 160, 00197 Roma, IT
AGN 40281
OS ESP1997045 EP 0787489 A2 970806
SO Wila-EPZ-1997-H32-T1b
DT Patent
LA Anmeldung in Englisch; Veroeffentlichung in Englisch
DS R AT; R BE; R CH; R DE; R DK; R ES; R FI; R FR; R GB; R GR; R IE; R IT; R LI; R LU; R MC; R NL; R PT; R SE
PIT EPA2 EUROPAEISCHE PATENTANMELDUNG
PI EP-787489 A2 970806
OD 970806
AI 96EP-0830617 961211
PRAI 95IT-RM95824 951215
ABEN A pharmaceutical compositions comprising L-carnitine or alkanoyl L-carnitine and hydroxycitric or pantothenic acid or derivatives thereof
for the prevention and treatment of diseases brought about by lipid metabolism disorders, is disclosed.

L4 ANSWER 12 OF 51 EUROPATFULL COPYRIGHT 1999 WILA

PATENT APPLICATION - PATENTANMELDUNG - DEMANDE DE BREVET

AN 866137 EUROPATFULL ED 19981004 EW 9839 FS OS
TIEN Process for producing calcium salt of (-)-Erythrohydroxycitric acid.
TIDE Verfahren zur Herstellung von Calcium (-)-Erythrohydroxyzitrat.
TIFR Procede de preparation de (-)-erythrohydroxycitrate de calcium.
IN Sharma, Nina, Lupin Lab. Ltd. Nat. Pro. Div., 159 C.S.T. Road, Kalina,

Santacruz (East), Mumbai - 400 098, State Of Maharashtra, IN; Parashuraman, Meena, Lupin Lab. Ltd. Nat. Pro.Div., 159 C.S.T. Road, Kalina, Santacruz (East), Mumbai - 400 098, State Of Maharashtra, IN; Raman, Girija, Lupin Lab. Ltd. Nat. Pro. Div., 159 C.S.T. Road, Kalina, Santacruz (East), Mumbai - 400 098, State Of Maharashtra, IN

PA LUPIN LABORATORIES LIMITED, 159, C.S. T. Road, Kalina, Santa Cruz (East), Bombay, Maharashtra - 400098, IN

PAN 1885360

AG Harrison, David Christopher et al, MEWBURN ELLIS York House 23 Kingsway, London WC2B 6HP, GB

AGN 31532

OS ESP1998065 EP 0866137 A1 980923

SO Wila-EPZ-1998-H39-T1a

DT Patent

LA Anmeldung in Englisch; Veroeffentlichung in Englisch

DS R AT; R BE; R CH; R DE; R DK; R ES; R FI; R FR; R GB; R GR; R IE; R IT; R LI; R LU; R MC; R NL; R PT; R SE

PIT EPA1 EUROPAEISCHE PATENTANMELDUNG

PI EP-866137 A1 980923

OD 980923

AI 97EP-0301777 970317

ABEN A process for extraction of hydroxycitric acid as calcium salt from the fruit rind of **Garcinia** species such as **Garcinia** cambogia, **Garcinia** indica and **Garcinia** atroviridis, which comprises reaction of an aqueous suspension of **Garcinia** rind with a mixture of pectic enzymes such as polygalactouronase (PG) and pectin lysase (PL), at a temperature of 40.degree.C followed by addition of an alkali such as sodium hydroxide and, from the intermediate alkali metal salt of hydroxycitric acid the corresponding calcium salt is prepared by addition of calcium chloride. The calcium salt of (-)-hydroxycitric acid is therapeutically active component.

L4 ANSWER 13 OF 51 EUROPATFULL COPYRIGHT 1999 WILA

PATENT APPLICATION - PATENTANMELDUNG - DEMANDE DE BREVET

AN 841011 EUROPATFULL ED 19980526 EW 9820 FS OS

TIEN Dietary preparation comprising chitosan and other soluble fibres combined with ascorbic acid, organic chromium, vanadium and **garcinia** hydroxycitrate for lipid absorption lowering and glucide metabolism stabilization.

TIDE Mit Ascorbinsaeure, organischem Chrom, Vanadium und Garciniahydroxycitrate kombinierte Chitosan und andere loesliche Fasern enthaltende Diaetzusammensetzung zur Lipideabsorptionsverminderung und Glucidenmetabolismusstabilisierung.

TIFR Preparation dietetique comprenant chitosan et autres fibres solubles combinees avec acide ascorbique, chrome organique, vanadium et hydroxycitrate de **garcinia** pour abaisser l'absorption de lipide et stabiliser le metabolisme glucidique.

IN Littera, Renato, Via Barbaro, 19, 10143 Torino, IT

PA SIRC S.p.A. NATURAL & DIETETIC FOODS, Via E. Fermi, 3, I-20090 Caleppio Di Settala (MI), IT

PAN 1617230

AG Sarpi, Maurizio, Studio FERRARIO Via Collina, 36, 00187 Roma, IT

AGN 41002
OS ESP1998032 EP 0841011 A1 980513
SO Wila-EPZ-1998-H20-T3a
DT Patent
LA Anmeldung in Englisch; Veroeffentlichung in Englisch
DS R AT; R BE; R CH; R DE; R DK; R ES; R FI; R FR; R GB; R GR; R IE; R IT; R LI; R LU; R MC; R NL; R PT; R SE
PIT EPA1 EUROPAEISCHE PATENTANMELDUNG
PI EP-841011 A1 980513
OD 980513
AI 97EP-0830530 971022
PRAI 96IT-RM96720 961023
ABEN A preparation based on chitosan and other substances having high fibre content, such as guar flour, is added with an acid, such as ascorbic acid, to increase the effectiveness as fat binding agent and is combined with three proximate principles such as organic chromium, vanadium and **garcinia** hydroxycitrate so as to synergically act on the stabilization of the glucide and lipid metabolism. <image>

L4 ANSWER 14 OF 51 EUROPATFULL COPYRIGHT 1999 WILA

PATENT APPLICATION - PATENTANMELDUNG - DEMANDE DE BREVET

AN 815857 EUROPATFULL ED 19980119 EW 9802 FS OS
TIEN ANTIOBESTIC AGENT CONTAINING PROCYANIDIN AS THE ACTIVE INGREDIENT.
TIDE PROCYANIDIN ALS DEN AKTIVEN BESTANDTEIL ENTHALTENDE MITTEL GEGEN FETTLEIBIGKEIT.
TIFR AGENT ANTI-OBESITE DONT LE PRINCIPE ACTIF EST LA PROCYANIDINE.
IN NAKAHARA, Koichi, 3-4-A211, Higashiizumigaoka Toyonaka-shi, Osaka 560, JP;
NAKAI, Masaaki, 6-17-5-B103, Senriyamanishi Suita-shi, Osaka 565, JP;
TAMURA, Yukiyoshi, 1348-7, Mukaishimamachi Mitsugi-gun, Hiroshima 722, JP
PA SUNTORY LIMITED, 1-40, Dojimahama 2-chome, Kita-ku, Osaka-shi, Osaka 530, JP
PAN 423903
AG Hansen, Bernd, Dr. Dipl.-Chem. et al, Hoffmann Eitle, Patent- und Rechtsanwaelte, Arabellastrasse 4, 81925 Muenchen, DE
AGN 4924
OS ESP1998001 EP 0815857 A1 980107
SO Wila-EPZ-1998-H02-T1b
DT Patent
LA Anmeldung in Japanisch; Veroeffentlichung in Englisch; Verfahren in Englisch
DS R AT; R BE; R CH; R DE; R DK; R ES; R FI; R FR; R GB; R GR; R IE; R IT; R LI; R LU; R NL; R PT; R SE
PIT EPA1 EUROPAEISCHE PATENTANMELDUNG (Internationale Anmeldung)
PI EP-815857 A1 980107
OD 980107
AI 96EP-0943298 961226
PRAI 95JP-0338493 951226
RLI 96WO-JP03810 961226 INTAKZ
WO9723210 970703 INTPNR
ABEN An antiobestic agent which has, in addition to the antiobestic effect,

the effects of inhibiting saccharolytic digestive enzymes, suppressing an increase in blood sugar level, inhibiting the absorption of monosaccharides, adsorbing and excreting cholic acid, lowering cholesterol level and blood triglyceride level and, inhibiting lipase and is useful not only as an antiobestic agent but also as antilipotrophic, antihyperlipidemic, antiarteriosclerotic and antidiabetic agents. An extract of tamarind seed coat being rich un procyanidin (trimer of formula (I)), which is the active ingredient in the antiobestic agent, exerts as such a potent antiobestic effect without being purified any more. The antiobestic agent serves as a saccharolytic digestive enzyme inhibitor, a hypoglycemic agent, a monosaccharide absorption inhibitor, a cholic acid adsorption/excretion agent, a cholesterol-lowering agent, a blood triglyceride level-lowering agent and a lipase inhibitor and facilitates the production of foods, drinks and feeds showing these effects, thus contributing to the amelioration or prevention of diabetics or **obesity** in daily life.

L4 ANSWER 15 OF 51 CAPLUS COPYRIGHT 1999 ACS
AN 1971:467483 CAPLUS
DN 75:67483
TI Garcinia acid or its derivatives for preventing fatty acid deposits in a biological system
IN Lowenstein, John M.
PA Hoffmann-La Roche, F., und Co., A.-G.
SO Ger. Offen., 19 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE2052131	A	19710506	70DE-2052131	19701023
	US3764692	A	19731009	70US-0077042	19700930
	ZA7006931	A	19710728	70ZA-0006931	19701012
	IL--35477	A1	19730829	70IL-0035477	19701019
	NL7015348	A	19710504	70NL-0015348	19701020
	GB1311015	A	19730321	70GB-0005982	19701027
	FR2070174	A5	19710910	70FR-0038856	19701028
	FR2070174	B1	19740222		
PRAI	69US-0872413		19691029		

AB The title compds. in oral doses of 15 to 600 mg or parenteral daily doses of 1 mg/kg to 25 mg/kg in the usual dosage forms are useful in the treatment of obesity and for correcting abnormalities of lipid metabolism.

L4 ANSWER 16 OF 51 CABA COPYRIGHT 1999 CABI
AN 89:59123 CABA
DN 891413380
TI A natural food, the Malabar tamarind, may be effective in the treatment of obesity
AU Sergio, W.
CS 1138 S. Dixie Hwy, Suite 20, Coral Gables, FL 33146, USA.

Victor Oh

SO Medical Hypotheses, (1988) Vol. 27, No. 1, pp. 39-40. 9 ref.
ISSN: 0306-9877
DT Journal
LA English
AB Several studies on the use of (-)-hydroxycitric acid to control feed intake in animals are discussed, and a possible mechanism is suggested. The fruit of **Garcinia** cambogia, G. atroviridis and G. indica contain 20 to 30% (-)-hydroxycitric acid on a dry weight basis and experiences of using those fruits to limit food intake and facilitate weight loss are reported. Further studies may establish whether the fruits have a role to play in the treatment of **obesity**.

L4 ANSWER 17 OF 51 BIOBUSINESS COPYRIGHT 1999 BIOSIS
AN 94:84084 BIOBUSINESS
DN 0664286
TI **Garcinia** cambogia extract: A natural remedy for **obesity**.
AU Anon
SO Whole Foods, (1994) Vol.17, No.11, Nov., P.108,110.
ISSN: 0193-1504.
FS UNIQUE
LA ENGLISH

L4 ANSWER 18 OF 51 EMBASE COPYRIGHT 1999 ELSEVIER SCI. B.V.
AN 96101395 EMBASE
DN 1996101395
TI [Control of **obesity** with **Garcinia** cambogia extract].
EXTRACTO DE **GARCINIA** CAMBOGIA EN EL CONTROL DE LA OBESIDAD.
AU Roman Ramos R.; Flores Saenz J.; Alarcon Aguilar en M.C.F.
CS Depto. de Ciencias de la Salud, Div. CBS, UAM,Iztapalapa, Mexico
SO Investigacion Medica Internacional, (1996) 22/3 (97-100).
ISSN: 0185-2108 CODEN: IMEIDH
CY Mexico
DT Journal; Article
FS 006 Internal Medicine
025 Hematology
030 Pharmacology
037 Drug Literature Index
LA Spanish
SL Spanish; English
AB The purpose of the present study was to evaluate the weight loss and the decrease of cholesterolemia and triglyceridemia in overweight of subjects treated with lyophylized extract of **Garcinia** cambogia (GC). Two groups were randomly allocated. Each group had 20 adult, healthy (except for the overweight from I to III grade) subjects. Placebo was administered to the subjects in the first group, and GC to the subjects in the second group, both in similar capsules of 500 mg, before each meal and during eight weeks. Results showed that GC caused a significant reduction ($p < 0.05$) of the overweight, cholesterol and triglycerides in relation to the control group with placebo, without the side effects commonly caused by anorectic sympathomimetic amines. In conclusion, it can be assured that GC represents a new efficacious alternative in the control of **obesity**.

Searcher: Dilip 308-4268

Victor Oh

L4 ANSWER 19 OF 51 FSTA COPYRIGHT 1999 IFIS
AN 1998(03):T0200 FSTA FS FSTA
TI The spice of life?
AU Anon.
SO Food Ingredients and Analysis International, (1997) 19 (Nov./Dec.) 45-46, 49, 11 ref.
ISSN: 0968-574X.
DT Journal
LA English
AB Dried fruits of **Garcinia** cambogia, also called Malabar tamarind, are widely used as a spice in the preparation of fish curry in southern India. Its use as a metabolic regulator of **obesity** and its potential as a functional food are discussed. Aspects considered are: description of **Garcinia** cambogia; manufacturing process; metabolism; product formulation; use of **Garcinia** extract (and its main constituent hydroxycitric acid) for **obesity** control; and recommended daily intake for wt. management.

L4 ANSWER 20 OF 51 CAPLUS COPYRIGHT 1999 ACS
AN 1997:720056 CAPLUS
DN 127:351178
TI Dietary composition containing chitosan, Garcinia cambogia hydroxycitrate, and organic chromium
IN Littera, Renato
PA Sirc S.P.A. Natural & Dietetic Foods, Italy
SO Eur. Pat. Appl., 6 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP-803202	A2	19971029	97EP-0830189	19970424
	EP-803202	A3	19980429		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
PRAI	96IT-RM00279		19960426		

AB The use of prepns. based on the combination of chitosan with org. chromium and **Garcinia** cambogia hydroxycitrate as dietary products for the treatment of **obesity** having hypocholesteremic and sugar absorption reducing activity is disclosed. The proposed combination of chitosan with org. chromium and **Garcinia** cambogia hydroxycitrate is formulated on the base of the effects that the above three components have on the glucid metab. Such effects tends particularly to decrease the values of cholesterolemia and triglycerides in case they are too high. The integrator of the invention can be administered by mouth in the usual dose unit both as capsules and tablets and is efficacious as diet integrator in the wt. reducing programs aiming at calorie restrictions in obese subjects, in the treatment of hypertension, and as hypocholesteremic product.

Searcher: Dilip 308-4268

L4 ANSWER 21 OF 51 CAPLUS COPYRIGHT 1999 ACS
AN 1997:224033 CAPLUS
DN 126:237674
TI Health food containing Garcinia cambogia extract for controlling body weight
IN Nishida, Hiroshi
PA Nishida Hiroshi, Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP09051779	A2	19970225	95JP-0206089	19950811

AB The health food contains G. cambogia ext. 30-70, borage seed oil 1-8, and pepper powder 1-4 % by wt. G. cambogia ext. rich in hydroxycitric acid prevents fat biosynthesis and produces glycogen, .gamma.-linolenic acid in the borage seed oil stimulates brown fat cells and produces heat, while the pepper also increases heat which enhances glycogen metab. These components act synergistically against obesity.

L4 ANSWER 22 OF 51 PROMT COPYRIGHT 1999 IAC

AN 97:589419 PROMT
TI Adjunct support for the diabetic: Natural agents that may prove beneficial
AU LaValle, James B.
SO Drug Store News, (20 Oct 1997) pp. CP22.
ISSN: 0191-7587.
LA English
WC 1124
FULL TEXT IS AVAILABLE IN THE ALL FORMAT
AB JAMES B. LAVALLE
Diabetes is a topic that strikes a strong personal note. My grandmother died of the complications of diabetes, and, before her death, she was blind and had several digits amputated. There are 650,000 new diabetics annually, and, with the continually increasing problems of hyperinsulinemia, insulin resistance and impaired glucose tolerance, an even larger portion of the population is at risk for eventually developing diabetes.
It is time for healthcare professionals to pull out all the stops and develop an integrated approach to diabetic care. We have a population in which 39 percent are obese and 70 percent are overweight. Abdominal obesity is one of the major risk factors for developing IGT and, potentially, diabetes.
When obesity/weight gain, diabetes/hypoglycemia and hyperlipidemia/elevated triglycerides appear collectively in an individual, it is called Syndrome X. Insulin regulation has a positive impact on Syndrome X.
Naturally, the two biggest factorsin controlling blood sugar are to improve diet and to get regular exercise. Americans consume about 150 pounds of refined sugar per person each year. Additionally, items marketed

as low-fat are often crammed with sugar and carbohydrates. Exercise is the second valuable component in controlling insulin levels. As pharmacists, it is important for us to stress the benefits of proper nutrition and exercise if we truly want to make a difference in the quality of life in our patients.

Today, there are several key nutritional supplements that may benefit the diabetic and improve the control of blood sugar metabolism. These include:

L4 ANSWER 23 OF 51 PROMT COPYRIGHT 1999 IAC

AN 97:215223 PROMT
TI Looking for quick and easy losses
SO OTC Update, (1 Mar 1997) pp. N/A.
LA English
WC 3529
FULL TEXT IS AVAILABLE IN THE ALL FORMAT

AB Americans' obsession with shedding pounds has fattened up the market as consumers continue to seek out that "magic pill." Looking for instant gratification and long-term weight maintenance, weight-conscious adults will try almost anything at least once -- from cabbage soup diets to meal replacement shakes and powders. However, hope springs eternal with Wyeth-Ayerst's launch of Redux (dexfenfluramine) for the long-term, Rx treatment of obesity. See related story on page 74. Meanwhile, sales of OTC weight-loss aids in the US and Canada have increased to $93 5ran. Sales of diet candies/tablets/gums/drops remained stable, whilst sales of meal replacement shakes and drinks have increased significantly, reflecting consumers' comfort levels with these products.

One out of every three American adults, or 33 % of the adult population, is overweight, according to the National Center for Health Statistics. The standard used to define overweight is a body mass index, or BMI, of 27.8 for adultmales and 27.3 for adult females (see table 1). Being obese -- having a BMI of 30 or higher -- contributes to illness and death as those who are obese have increased rates of diabetes, high blood pressure, heart disease, arthritis, lung disorders and certain forms of cancer. A study published in the Journal of the American Medical Association found that at least 300,000 Americans die prematurely each year from "poor diet/inactivity." In addition, overweight people often are socially shunned and experience job discrimination.

TABLE 1 USA: BMI
CALCULATING BODY MASS INDEX
* Multiply your weight in pounds by 700
* Divide this total by your height in inches
* Divide again by your height
Source: OTC UPDATE based on data from The National Women's Health Report

Financial toll

Obesity has taken a financial toll on the health care system as well. The Institute of Medicine has calculated the health care cost of obesity to be more than $70bn annually. This figure includes direct costs such as hospital care and physician services, as well as lost productivity caused

by death and disability from weight-related diseases. "We know that the poorest people in our country have a much greater prevalence of obesity (especially black and Hispanic women) than do the more affluent," says Barbara Moore, president and CEO of Shape Up America!, a non-profit organization founded by C. Everett Koop, former US Surgeon General (see table 2; p74).
THIS IS AN EXCERPT: COPYRIGHT 1997 Nicholas Hall & Company

L4 ANSWER 24 OF 51 TOXLIT
AN 1998:5804 TOXLIT
DN CA-127-351178T
TI Dietary composition containing chitosan, Garcinia cambogia hydroxycitrate, and organic chromium.
AU Littera R
SO (1997). Eur. Pat. Appl. PATENT NO. 803202 10/29/1997 (Sirc S.P.A. Natural & Dietetic Foods).
CODEN: EPXXDW.
CY ITALY
DT Patent
FS CA
LA English
OS CA 127:351178
EM 199804
AB The use of prepns. based on the combination of chitosan with org. chromium and **Garcinia** cambogia hydroxycitrate as dietary products for the treatment of **obesity** having hypocholesteremic and sugar absorption reducing activity is disclosed. The proposed combination of chitosan with org. chromium and **Garcinia** cambogia hydroxycitrate is formulated on the base of the effects that the above three components have on the glucid metab. Such effects tends particularly to decrease the values of cholesterolemia and triglycerides in case they are too high. The integrator of the invention can be administered by mouth in the usual dose unit both as capsules and tablets and is efficacious as diet integrator in the wt. reducing programs aiming at calorie restrictions in obese subjects, in the treatment of hypertension, and as hypocholesteremic product.

L4 ANSWER 25 OF 51 FSTA COPYRIGHT 1999 IFIS
AN 1999(06):J1454 FSTA FS FSTA
TI Quantitative analysis of (-) hydroxy citric acid and (-) hydroxy citric acid lactone in Garcinia fruits and Garcinia products.
AU Antony, J. I. X.; Josan, P. D.; Shankaranarayana, M. L.
CS Kancor Flavours & Extracts Ltd., Post Bag #3, Angamally South 683 573, India
SO Journal of Food Science and Technology, India, (1998) 35 (5) 399-402, 13 ref.
ISSN: 0022-1155.
DT Journal
LA English
AB **Garcinia** cambogia (Malabar tamarind) and G. indica (Kokam) are valued for their sour taste. (-)-Hydroxy citric acid (HCA) is responsible

for sour taste of these fruits and physiological research has indicated that HCA may also have a regulatory effect on **obesity** and appetite. Analysis of HCA is difficult because it rapidly converts to (-)-hydroxy acid lactone (HCAL) during extraction and is difficult to separate from the related compound citric acid. In addition, standard HCA reference samples are not available. In an attempt to overcome these problems and develop a standard method for HCA analysis in **Garcinia** fruits, a combined approach of titrimetry and HPLC for determination of HCA, HCAL and citric acid using selectively prepared samples of calcium hydroxy citrate with and without the corresponding lactone is described. Total acids are determined by titrating against standard alkali and citric acid using HPLC in a sample of calcium hydroxy citrate not containing lactone. Differences in values obtained are used to calculate HCA contents. In a sample of calcium hydroxy citrate lactone, HCA content is determined by HPLC. HCA content is then determined in a corresponding sample after total conversion of lactone to HCA. From the difference in values, HCAL contents are calculated. Thus both HCA and HCAL standards can be prepared and used in further analyses. It is concluded that the method is valid and should be useful for accurate determination of HCA and HCAL using working reference standards, particularly for **Garcinia** fruit product quality control.

L4 ANSWER 26 OF 51 COPYRIGHT 1999 PJB

AN 1999:986 PHIN
DN S00605180
DED 11 Dec 1998
TI Herbal therapy not effective in obesity
SO Scrip (1998) No. 2395 p21
DT Newsletter
FS FULL

L4 ANSWER 27 OF 51 CAPLUS COPYRIGHT 1999 ACS
AN 1998:669921 CAPLUS
DN 130:90305
TI Inhibition of lipogenesis and stimulation of lipolysis in 3T3 L1 cells by a Garcinia extract
AU Hasegawa, Noboru
CS Nagoya Bunri College, Nagoya, 451-0077, Japan
SO Nippon Kasei Gakkaishi (1998), 49(8), 889-892
CODEN: NKGAEB; ISSN: 0913-5227
PB Nippon Kasei Gakkai
DT Journal
LA English
AB We studied the influence of a Garcinia ext. on the lipogenesis and lipolysis of insulin-differentiated 3T3 L1 cells. After the 2nd week of culture with insulin, the cells exhibited numerous larger intracytoplasmic lipid droplets. This lipogenesis due to insulin was inhibited when the Garcinia ext. was administered. When the Garcinia ext. was added to the mature adipocytes, the smaller (less than 10 .mu.m2) intracytoplasmic lipid droplets selectively disappeared. These data suggest that the Garcinia ext. inhibited lipogenesis and stimulated lipolysis.

Searcher: Dilip 308-4268

Victor Oh

L4 ANSWER 28 OF 51 CAPLUS COPYRIGHT 1999 ACS
AN 1998:650408 CAPLUS
DN 129:321142
TI **Obesity** preventive agents containing extracts of **Garcinia** cambogia and mulberry tree
IN Mizusaki, Shigenarobu; Hashimoto, Katsuji; Sudo, Shigeo; Hasegawa, Makoto
PA toyotama Kenko Shokuhin K. K., Japan; Olto Corporation K. K.
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP10265397	A2	19981006	97JP-0071491	19970325

AB **Obesity**-prevention agents comprise combination of (-)-hydroxycitric acid-contg. **Garcinia** cambogia pericarp exts. and 1-deoxynojirimycin-contg. mulberry leaf exts. Dried leaves of mulberry tree were extd. with water while heating and the obtained exts. were treated with ethanol. After removal of the ppts. by centrifugation, the exts. were concd. and freeze dried. The above exts. and G. cambogia exts. contg. 50 % (-)-hydroxycitric acid were blended with a feed and its anti-**obesity** effects were tested with mice.

L4 ANSWER 29 OF 51 PROMT COPYRIGHT 1999 IAC

AN 1998:671853 PROMT
TI NOT QUITE VIAGRA, YET HARDY.
SO Business India, (15 Nov 1998) pp. 128.
ISSN: 0254-5268.
LA English
AB The health food supplement makers plan to sell their natural and herbal products in a big way after the euphoria of Viagra has died down. Spirulina and **garcinia** have posted a revenue of Rs20 crore each in its first year of operations. Spirulina is a blue green algae grown under contolled conditions. It supplements body proteins, vitamin and minerals thereby inducing virulity. **Garcinia** is a herbal fruit extract that helps curb **obesity**. Dabur India and Murugappa Chettiar are the first ones to make tablets of spirulina. Dabur India is a leader in spirulina and **garcinia**. It has set up a 100 percent subsidiary called Sanat Products (SP) for natural health supplement products. It has a good brand equity. Its spirulina brand is named Sunova Spiruline and its **garcinia** is called Sunova Bioslim. SP raised the price of its products by 20 percent from Rs95 for a pack of 60 capsules to Rs200 in a year's time. (rk)

L4 ANSWER 30 OF 51 PROMT COPYRIGHT 1999 IAC

AN 1998:619916 PROMT
TI Herbals, vitamins featured in JAMA issue devoted to alternative medicine.
SO Food Chemical News, (23 Nov 1998) pp. NA.
ISSN: 0015-6337.
LA English
WC 573
FULL TEXT IS AVAILABLE IN THE ALL FORMAT

Searcher: Dilip 308-4268

AB Expenditures for and use of alternative medicine increased substantially between 1990 and 1997, due primarily to an increase in the proportion of the population seeking alternative therapies, rather than increased visits per patient, according to results of a national survey published in the Nov. 11 Journal of the American Medical Association.

The percentage of people who used at least one of 16 alternative therapies rose to 42.1% in 1997, up from 33.8% in 1990. An estimated $21.2 billion was spent on alternative medicine professional services, a 45.2% increase from 1990.

The therapies that increased most included herbal medicine and megavitamins. The alternative therapies most frequently used were for chronic conditions, including back problems, anxiety, depression and headaches.

The study was among several presented in JAMA as part of an alternative medicine-themed issue that included results of six randomized trials for alternative therapies. One study reported that saw palmetto improved symptoms associated with an enlarged prostate. Another study found that patients with irritable bowel syndrome had significant improvement in symptoms when treated with Chinese herbs compared to those treated with a placebo.

Another study found loss in body weight and fat mass were no different in overweight patients treated with a high-fiber, low-energy diet and **Garcinia** cambogia, (Hydroxycitric Acid) a potential anti-**obesity** agent, than in those treated with diet and a placebo.

The JAMA issue was hailed as a milestone by industry groups such as the Council for Responsible Nutrition. "Proponents of alternative medicine should embrace enthusiastically the publicity surrounding this issue and related articles in many of the association's other publications," CRN president and CEO John Cordaro said. "This is an opportunity for alternative medicine advocates to redouble their efforts to work together and advance the science behind the therapies."

L4 ANSWER 31 OF 51 PROMT COPYRIGHT 1999 IAC

AN 1998:609135 PROMT
TI PUBLIC USING MORE ALTERNATIVE CARE.
AU Moore, J. Duncan
SO Modern Healthcare, (16 Nov 1998) pp. 16(1).
ISSN: 0160-7480.
LA English
WC 318
FULL TEXT IS AVAILABLE IN THE ALL FORMAT

AB Americans are flocking to alternative medicine, and traditional allopathic practitioners have noticed. Four of 10 Americans used some kind of alternative therapy in 1997, the Journal of the American Medical Association reported last week.

Americans also visited alternative practitioners more than primary-care physicians, spending $21.2 billion on those visits. Alternative-care expenditures were 45% higher in 1997 than in 1990. People now spend more out-of-pocket on alternative medicine than on hospitalization.

Those results came from a telephone survey of 2,055 adults and were the

basis of the lead article in a JAMA theme issue on alternative medicine. JAMA defines alternative care as "interventions neither taught widely in medical schools nor generally available in U.S. hospitals."

The special issue stemmed from the desire of the public and practitioners to know more about these therapies. The medical science community has not been especially interested in the subject.

Last year, JAMA editors surveyed their readers and found a disparity between what editors and well-known scientists thought doctors should read about, and what doctor-subscribers wanted to read about. JAMA's expert panel ranked alternative medicine at No. 68 out of 73 topics. The journal's readers ranked it No. 7.

The five original studies published in this edition yielded results that range from unsurprising to unexpected, with a few that would seem incredible if they hadn't been published in JAMA.

* Phytotherapy, or the use of plant extracts, can help treat benign prostatic hyperplasia. Saw palmetto extracts can improve urine flow and urologic symptoms.
* Spinal manipulation is ineffective at treating tension headaches.
* Chinese herbs can help some people with irritable bowel syndrome.
* The anti-**obesity** agent **garcinia** cambogia in herbal compounds does not lead to weight loss.
* Neither acupuncture nor the drug amitriptyline hydrochloride relieves pain caused by HIV-related peripheral neuropathies.
* A Chinese herb burned next to a woman's little toe can cause a fetus in breech position to move into a head-first position.

L4 ANSWER 32 OF 51 PROMT COPYRIGHT 1999 IAC

AN 1998:602522 PROMT
TI Herbals, vitamins featured in JAMA issue devoted to alternative medicine.
SO Food Labeling News, (11 Nov 1998) pp. NA.
ISSN: 1064-6329.
LA English
WC 578
FULL TEXT IS AVAILABLE IN THE ALL FORMAT

AB Expenditures for and use of alternative medicine increased substantially between 1990 and 1997, due primarily to an increase in the proportion of the population seeking alternative therapies, rather than increased visits per patient, according to results of a national survey published in the Nov. 11 Journal of the American Medical Association.

The percentage of people who used at least one of 16 alternative therapies rose to 42.1% in 1997, up from 33.8% in 1990. An estimated $21.2 billion was spent on alternative medicine professional services, a 45.2% increase from 1990.

The therapies that increased most included herbal medicine and megavitamins. The alternative therapies most frequently used were for chronic conditions, including back problems, anxiety, depression and headaches.

The study was among several presented in JAMA as part of an alternative medicine-themed issue that included results of six randomized trials for

alternative therapies. One study reported that saw palmetto improved symptoms associated with an enlarged prostate (See related article, Page 7). Another study found that patients with irritable bowel syndrome had significant improvement in symptoms when treated with Chinese herbs compared to those treated with a placebo.

Another study found loss in body weight and fat mass were no different in overweight patients treated with a high-fiber, low-energy diet and **Garcinia** cambogia, (Hydroxycitric Acid) a potential anti-**obesity** agent, than in those treated with diet and a placebo.

The JAMA issue was hailed as a milestone by industry groups such as the Council for Responsible Nutrition. "Proponents of alternative medicine should embrace enthusiastically the publicity surrounding this issue and related articles in many of the association's other publications," CRN president and CEO John Cordaro said. "This is an opportunity for alternative medicine advocates to redouble their efforts to work together and advance the science behind the therapies."

L4 ANSWER 33 OF 51 PROMT COPYRIGHT 1999 IAC

AN 1998:250769 PROMT
TI Zen in a bottle
AU McCormack, Scott
SO Forbes, (18 May 1998) pp. 046.
ISSN: 0015-6914.
LA English
WC 492
FULL TEXT IS AVAILABLE IN THE ALL FORMAT

AB HERBAL SLIMMER, an overpoweringly sweet grapefruit-flavored green tea, is supposed to help make you trim. This despite its 236 calories and 40 grams of sugar. How can sugar make you thin? The secret is **garcinia**, a spice from India used in Southeast Asian folk medicine to battle **obesity**.

The claim has never been backed by science. After a few sips, Herbal Slimmer leaves an aftertaste best described as lawn clippings.

Well, taste may not be everything. Some sharp entrepreneurs hope to capitalize on the nation's quest for self-improvement by taking the New Age drinks category sparkling water, iced teas and fresh juices--to the next level.

Herb-enhanced beverages brought in an estimated $30 million last year. Insignificant for the $7 billion noncarbonated refreshment category, but up from almost zero in 1996.

"This is where the innovation is happening in the beverage industry," says Gary Hemphill of the Beverage Marketing Corp. But he adds: "The question remains whether consumers really want their drinks to do more than refresh."

Tribal Tonics, one of the dozen or so outfits that make the stuff, certainly thinks they do want more. In addition to Herbal Slimmer, it recently unveiled four other exotic teas, with names like Immune Boon and Relaxation Cocktail, at $1.29 per 12-ounce can.. The company is forecasting 1998 sales of $5 million.

Hansen Beverage's d-stress, a carbonated drink, is filled with the Polynesian herb kava and the native European St. John's Wort. Hansen's

8-ounce concoction boasts that it "contributes to a relaxed feeling of general well-being during times of physical and mental stress." The drink tastes like flat ginger ale.
As for the purported benefits, tough to tell. Herbologists say St. John's Wort is a holistic antidepressant but must be taken for several weeks before it begins to work. Hansen's recommends three drinks per day$5.97 at
retail with one caveat: A warning label instructs drinkers to "exercise caution when driving a motor vehicle or operating machinery." Turns out kava has an alcohol-like effect if more than 300 milligrams are consumed. D-stress contains 100 milligrams per can.
As long as marketers do not claim to cure any disease, the herbs in these drinks are not regulated the way drugs are by the Food & Drug Administration.
"Most of them don't do a damn thing," admits John Bello, a youthful 52 and
founder of market leader SoBe, a Norwalk, Conn.-based company.

L4 ANSWER 34 OF 51 TOXLIT
AN 1998:138815 TOXLIT
DN CA-129-321142A
TI **Obesity** preventive agents containing extracts of **Garcinia** cambogia and mulberry tree.
AU Mizusaki S; Hashimoto K; Sudo S; Hasegawa M
SO (1998). Jpn. Kokai Tokkyo Koho PATENT NO. 98265397 10/06/1998 (Olto Corporation K. K.).
CODEN: JKXXAF.
CY JAPAN
DT Patent
FS CA
LA Japanese
OS CA 129:321142
EM 199812
AB **Obesity**-prevention agents comprise combination of (-)-hydroxycitric acid-contg. **Garcinia** cambogia pericarp exts. and 1-deoxynojirimycin-contg. mulberry leaf exts. Dried leaves of mulberry
tree were extd. with water while heating and the obtained exts. were treated with ethanol. After removal of the ppts. by centrifugation, the exts. were concd. and freeze dried. The above exts. and G. cambogia exts. contg. 50 % (-)-hydroxycitric acid were blended with a feed and its anti-**obesity** effects were tested with mice.

L4 ANSWER 35 OF 51 ADISALERTS COPYRIGHT 1999 (ADIS)
AN 1998:53805 ADISALERTS
DN 800722346
TI **Garcinia** cambogia (hydroxycitric acid) as a potential antiobesity agent
ADIS TITLE: Hydroxycitric acid: therapeutic use.; **Obesity**
AU Heymsfield S B; Allison D B; Vasselli J R; Pietrobelli A; Greensfield D; et al
CS Columbia University College of Physicians and Surgeons, New York, New York, USA
SO Journal of the American Medical Association (Nov 11, 1998), Vol. 280, pp. 1596-1600

Victor Oh

DT (Clinical study)
RE Obesity (Summary): Alert no. 12, 1998
FS Summary
LA English
WC 363

L4 ANSWER 36 OF 51 CIN COPYRIGHT 1999 ACS
AN 27(37):42584F CIN
TI Obesity drug developed from fruit rind
SO Chem. Wkly., 18 Aug 1998 (19980818), 43(51), p. 96. ISSN: 0045-6500; CODEN: CHWEBQ.
LA English
AB A research foundation in Bangalore has developed a new drug for **obesity** control that, it claims, is totally safe and much more effective than available formulas in the market. The Vittal Mallya Scientific Research Foundation has extracted a highly soluble powder form of purified hydroxycitric acid (HCA) from the rind of a fruit of the **garcinia** species, which grows abundantly in the country. The product could be added to any beverage without affecting its existing properties. It could be made into capsules or used as an additive to foods, health drinks or beverages for weight control without any side effects. Several scientists, including those from the Swiss-based pharmaceutical giant Hoffman-La Roche, had established that HCA, the active ingredient of the fruit, prevented conversion of excess carbohydrates into fat in the human body.

L4 ANSWER 37 OF 51 NAPRALERT COPYRIGHT (C) 1999 BD. TRUSTEES, U. IL.
AN 1999:2997 NAPRALERT
DN J19469
TI **OBESITY** PRVENTIVE AGENTS CONTAINING EXTRACTS OF **GARCINIA** CAMBOGIA AND MULBERRY TREE
AU MIZUSAKI S; HASHIMOTO K; SUDO S; HASEGAWA M
CS OLTO CORP, JAPAN
SO PATENT-JAPAN KOKAI TOKKYO KOHO-10 265,397 (1998) p. 4PP-..
DT Journal
LA JAPANESE
OS CA 129:321142
CHC 1264

L4 ANSWER 38 OF 51 ADISALERTS COPYRIGHT 1999 (ADIS)
AN 1999:24623 ADISALERTS
DN 800759854
TI Effects of a standardized guggulsterone phosphate supplement on a body composition in overweight adults: a pilot study
ADIS TITLE: Obesity therapies: pharmacodynamics.; Effect on bodyweight composition and mood; In patients with obesity
AU Antonio J; Colker C M; Torina G C; Shi Q; Brink W; et al
CS University of Nebraska, Kearney, Nebraska, USA
SO Current Therapeutic Research Clinical and Experimental (Apr 1, 1999), Vol. 60, pp. 220-227
DT (Clinical study)
RE Obesity (Summary): Alert no. 5, 1999
FS Summary
LA English
WC 555

Searcher: Dilip 308-4268

L4 ANSWER 39 OF 51 USPATFULL
AN 73:46590 USPATFULL
TI METHOD OF TREATING OBESITY
IN Lowenstein, John M., Wellesley Hills, MA, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US3764692 19731009
AI 70US-0077042 19700930 (5)
RLI Continuation-in-part of Ser. No. 69US-0872413, filed on 29 Oct 1969, now abandoned
DT Utility
EXNAM Primary Examiner: Meyers, Albert T.; Assistant Examiner: Drezin, Norman A.
LREP Welt; Samuel L.; Saxe; Jon S.; Leon; Bernard S.; Epstein; William H.; Gould; George M.
CLMN Number of Claims: 12
DRWN No Drawings
LN.CNT 472
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The inhibition of fatty acid synthesis is obtained in biological systems by utilizing a specific stereoisomer of hydroxycitric acid and derivatives thereof such as esters or lactones and the non-toxic salts of these compounds. It is believed that the present method involves the inhibition of citrate cleavage enzyme. Inhibition of fatty acid synthesis by the present method is useful in the treatment of obesity.

L4 ANSWER 40 OF 51 USPATFULL
AN 75:61094 USPATFULL
TI Hydroxycitric acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US3919254 19751111
AI 73US-0376478 19730705 (5)
RLI Division of Ser. No. 71US-0204288, filed on 2 Dec 1971, now patented, Pat. No. US3767678
DT Utility
EXNAM Primary Examiner: Rush, Raymond V.; Assistant Examiner: Tighe, Anne Marie T.
LREP Welt, Samuel L.; Saxe, Jon S.; Wittekind, Raymond R.
CLMN Number of Claims: 9
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 748
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Ester and amide derivatives of threo-hydroxycitric acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the treatment of obesity and in correcting conditions of lipid abnormalities.

L4 ANSWER 41 OF 51 USPATFULL
AN 76:63717 USPATFULL
TI Hydroxycitric acid derivatives

IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US3993668 19761123
AI 75US-0600997 19750801 (5)
RLI Division of Ser. No. 73US-0376478, filed on 5 Jul 1973, now patented, Pat. No. US3919254 which is a division of Ser. No. 71US-0204288, filed on 2 Dec 1971, now patented, Pat. No. US3767678
DT Utility
EXNAM Primary Examiner: Jiles, Henry R.; Assistant Examiner: Jaisle, C.
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 4
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 738
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Ester and amide derivatives of three-hydroxycitric acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the treatment of obesity and in correcting conditions of lipid abnormalities.

L4 ANSWER 42 OF 51 USPATFULL
AN 76:63716 USPATFULL
TI Hydroxycitric acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US3993667 19761123
AI 75US-0600996 19750801 (5)
RLI Division of Ser. No. 73US-0376478, filed on 5 Jul 1973, now patented, Pat. No. US3919254 which is a division of Ser. No. 71US-0204288, filed on 2 Dec 1971, now patented, Pat. No. US3767678
DT Utility
EXNAM Primary Examiner: Jiles, Henry R.; Assistant Examiner: Jaisle, C.
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 4
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 739
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Ester and amide derivatives of three-hydroxycitric acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the treatment of obesity and in correcting conditions of lipid abnormalities.

L4 ANSWER 43 OF 51 USPATFULL
AN 76:64983 USPATFULL
TI Hydroxycitric acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US3994927 19761130
AI 75US-0601245 19750801 (5)
RLI Division of Ser. No. 73US-0376478, filed on 5 Jul 1973, now patented,

Pat. No. US3919254 which is a division of Ser. No. 71US-0204288, filed on 2 Dec 1971, now patented, Pat. No. US3767678
DT Utility
EXNAM Primary Examiner: Jiles, Henry R.; Assistant Examiner: Jaisle, C. M. S.
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 3
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 744
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Ester and amide derivatives of three-hydroxycitric acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the treatment of obesity and in correcting conditions of lipid abnormalities.

L4 ANSWER 44 OF 51 USPATFULL
AN 77:4944 USPATFULL
TI Hydroxycitric acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US4005086 19770125
AI 75US-0601065 19750801 (5)
RLI Division of Ser. No. 73US-0376478, filed on 5 Jul 1973, now patented, Pat. No. US3919254 which is a division of Ser. No. 71US-0204288, filed on 2 Dec 1971, now patented, Pat. No. US3767678
DT Utility
EXNAM Primary Examiner: Jiles, Henry R.; Assistant Examiner: Bond, Robert T.
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 1
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 741
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Ester and amide derivatives of threo-hydroxycitric acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the treatment of obesity and in correcting conditions of lipid abnormalities.

L4 ANSWER 45 OF 51 USPATFULL
AN 77:6122 USPATFULL
TI Hydroxycitric acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US4006166 19770201
AI 75US-0601678 19750801 (5)
RLI Division of Ser. No. 73US-0376478, filed on 5 Jul 1973, now patented, Pat. No. US3919254 which is a division of Ser. No. 71US-0204288, filed on 2 Dec 1971, now patented, Pat. No. US3767678
DT Utility
EXNAM Primary Examiner: Jaisle, Cecilia
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 6

ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 750
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Ester and amide derivatives of threo-hydroxycitric acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the treatment of obesity and in correcting conditions of lipid abnormalities.

L4 ANSWER 46 OF 51 USPATFULL
AN 77:7249 USPATFULL
TI Hydroxycitric acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US4007208 19770208
AI 75US-0601246 19750801 (5)
RLI Division of Ser. No. 73US-0376478, filed on 5 Jul 1973, now patented, Pat. No. US3919478 which is a division of Ser. No. 71US-0204288, filed on 2 Dec 1971, now patented, Pat. No. US3767678
DT Utility
EXNAM Primary Examiner: Jaisle, Cecilia
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 7
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 740
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Ester and amide derivatives of threo-hydroxycitric acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the treatment of obesity and in correcting conditions of lipid abnormalities.

L4 ANSWER 47 OF 51 USPATFULL
AN 77:29869 USPATFULL
TI Hydroxycitric acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US4028397 19770607
AI 75US-0600995 19750801 (5)
RLI Division of Ser. No. 73US-0376478, filed on 5 Jul 1973, now patented, Pat. No. US3919254 which is a division of Ser. No. 71US-0204288, filed on 2 Dec 1971, now patented, Pat. No. US3767678
DT Utility
EXNAM Primary Examiner: Gerstl, Robert
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 2
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 765
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Ester and amide derivatives of threo-hydroxycitric acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the

treatment of obesity and in correcting conditions of lipid abnormalities.

L4 ANSWER 48 OF 51 USPATFULL
AN 84:10269 USPATFULL
TI Weight control with fat imbibing polymers
IN Page, Judith L., Sanford, MI, United States
Haigh, Daniel H., Sanford, MI, United States
Peters, James, Midland, MI, United States
PA The Dow Chemical Company, Midland, MI, United States (U.S. corporation)
PI US4432968 19840221
AI 81US-0313052 19811019 (6)
RLI Continuation-in-part of Ser. No. 80US-0198687, filed on 20 Oct 1980, now
abandoned
DT Utility
EXNAM Primary Examiner: Robinson, Douglas W.
CLMN Number of Claims: 78
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 1387
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Pharmacologically-acceptable fat imbibing polymers are introduced into the gastrointestinal tract of animals to control body weight.

L4 ANSWER 49 OF 51 USPATFULL
AN 97:22486 USPATFULL
TI Dietary supplement
IN Policappelli, Nini E., 361 N. Robertson Blvd., Los Angeles, CA, United States 90048
Garzone, Rafaele, Bari, Italy
Russo, Claudio, Bari, Italy
PA Policappelli, Nini E., Los Angeles, CA, United States (U.S. individual)
PI US5612039 19970318
AI 95US-0426677 19950421 (8)
RLI Continuation-in-part of Ser. No. 94US-0212246, filed on 14 Mar 1994, now
abandoned And a continuation-in-part of Ser. No. 94US-0303533, filed on 9 Sep 1994, now abandoned And a continuation-in-part of Ser. No. 94US-0344180, filed on 23 Nov 1994, now abandoned
DT Utility
EXNAM Primary Examiner: Rollins, John W.
LREP Merchant, Gould, Smith, Edell, Welter & Schmidt
CLMN Number of Claims: 11
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 576
AB A composition for dietary supplementation includes the following three compositions: The first composition is Germander (Teucrium Chamaedrys Herba), Camelia Tea (Camelia Thea Folia), and Spirulina (Spirulina Maxima); the second composition is Garcinia Gambogia, dry extract (Garcinia Cambogia Fructuse), Brown Algae, dry extract (Fucus Vesicolosus), and Germander (Teucrium Chamaedrys Herba); the third composition is Garcinia Gambogia, dry extract (Garcinia Cambogia Fructuse), Brown Algae, dry extract (Fucus Vesicolosus), and Orthosiphon, dry extract (Orthosiphon Stamineus Folia), respectively.

Additionally, there is a fourth composition including Common Bean (Phaseolus Vulgaris Fructus), Garcinia Cambogia, dry extract (Garcinia Cambogia Fructus), Pineapple, dry extract (Ananas Sativus Stipites), Gymnema Sylvestre, dry extract (Gymnema Sylvestre Folia), and Chromium Dinicotinate (Chromium).

L4 ANSWER 50 OF 51 USPATFULL
AN 1998:14823 USPATFULL
TI Method of treatment for carbohydrate addiction
IN Bernstein, Richard K., 1160 Greacen Point Rd., Mamaroneck, NY, United States 10543
PI US5716976 19980210
AI 96US-0615616 19960313 (8)
DT Utility
EXNAM Primary Examiner: Fay, Zohreh
LREP Kane, Dalsimer, Sullivan, Kurucz, Levy, Eisele and Richard
CLMN Number of Claims: 27
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 713
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method is described for alleviating carbohydrate addiction by administration of anorexients on a schedule that avoids tolerance to the anorexient.

L4 ANSWER 51 OF 51 FROSTI COPYRIGHT 1999 LFRA
AN 456610 FROSTI
TI Dietary composition containing chitosan, Garcinia cambogia hydroxycitrate and organic chromium.
IN Littera R.
PA SIRC SpA Natural & Dietetic Foods
SO European Patent Application
PI EP-803202 A2
AI 19970424
PRAI Italy 19960426
DT Patent
LA English
SL English
AB Dietary preparations are described incorporating chitosan, organic chromium, and **Garcinia** cambogica hydroxycitrate.
Garcinia cambogica is a tropical plant from south-east Asia of which the rind (Malabar tamarind or Goraka) is high in hydroxycitrate.
The compositions are intended for reducing sugar absorption, and are said to lower cholesterol levels. They may be used in treatment of **obesity**, and may be administered orally as capsules or tablets.
A double-blind placebo-controlled trial was undertaken of 150 overweight human subjects. Findings of this study are summarized.

Victor Oh

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FILE 'HOME' ENTERED AT 13:12:20 ON 14 MAY 1999


     (FILE 'HOME' ENTERED AT 13:06:15 ON 14 MAY 1999)

     INDEX '1MOBILITY, 2MOBILITY, ADISALERTS, AEROSPACE, AGRICOLA, AIDSLINE,
     ANABSTR, APILIT, APILIT2, APIPAT, APIPAT2, AQUASCI, BIBLIODATA,
     BIOBUSINESS, BIOCOMMERCE, BIOSIS, BIOTECHABS, BIOTECHDS, BLLDB, CABA,
     CANCERLIT, CAPLUS, CBNB, CEABA, CEN, CERAB, ...' ENTERED AT 13:06:22 ON
     14 MAY 1999
               SEA GARCINIA
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              184   FILE AGRICOLA
                3   FILE AIDSLINE
                4   FILE ANABSTR
                3   FILE AQUASCI
                3   FILE BIBLIODATA
               55   FILE BIOBUSINESS
              351   FILE BIOSIS
               22   FILE BIOTECHABS
               22   FILE BIOTECHDS
              357   FILE CABA
                4   FILE CANCERLIT
              378   FILE CAPLUS
                9   FILE CBNB
                3   FILE CEABA
                1   FILE CIN
                5   FILE COMPENDEX
                2   FILE CONFSCI
                1   FILE CROPB
                9   FILE CROPU
               33   FILE DDFB
               54   FILE DDFU
               24   FILE DGENE
               33   FILE DRUGB
               56   FILE DRUGU
                1   FILE EMBAL
               85   FILE EMBASE
                4   FILE ENERGY
                9   FILE EUROPATFULL
               38   FILE FROSTI
               65   FILE FSTA
                3   FILE GENBANK
                8   FILE GEOREF
                8   FILE IFIPAT
               17   FILE INPADOC
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               21   FILE IPA
               47   FILE JICST-EPLUS
               30   FILE LIFESCI
               55   FILE MEDLINE
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Searcher: Dilip 308-4268

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                261   FILE NAPRALERT
                 71   FILE NLDB
                  2   FILE OCEAN
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                  1   FILE PATOSDE
                  4   FILE PATOSEP
                  3   FILE PATOSWO
                  1   FILE PHIN
                  1   FILE POLLUAB
                109   FILE PROMT
                214   FILE SCISEARCH
                  1   FILE SIGLE
                  3   FILE TIBKAT
                 67   FILE TOXLINE
                 74   FILE TOXLIT
                   SEA GARCINIA (L)OBESITY
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                  2   FILE ADISALERTS
                  1   FILE BIOBUSINESS
                  1   FILE CABA
                  7   FILE CAPLUS
                  1   FILE CIN
                  1   FILE EMBASE
                  5   FILE EUROPATFULL
                  5   FILE FROSTI
                  3   FILE FSTA
                  1   FILE IFIPAT
                  1   FILE IPA
                  1   FILE NAPRALERT
                  5   FILE NLDB
                  1   FILE PATOSEP
                  1   FILE PHIN
                  7   FILE PROMT
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                 12   FILE USPATFULL
                  4   FILE WPIDS
                  4   FILE WPINDEX
L1                 QUE GARCINIA (L) OBESITY
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L2              62 S L1
L3              51 DUP REM L2 (11 DUPLICATES REMOVED)
L4              51 SORT L3 PY

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     TOXLIT, ADISALERTS, BIOBUSINESS, CABA, CIN, EMBASE, NAPRALERT, PHIN'
     ENTERED AT 13:11:24 ON 14 MAY 1999

     FILE 'HOME' ENTERED AT 13:12:20 ON 14 MAY 1999
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=> fil reg

FILE 'REGISTRY' ENTERED AT 15:36:30 ON 14 MAY 1999

STRUCTURE FILE UPDATES: 7 MAY 99 HIGHEST RN 222641-84-1
DICTIONARY FILE UPDATES: 13 MAY 99 HIGHEST RN 222641-84-1

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 13, 1999

Please note that search-term pricing does apply when conducting SmartSELECT searches.

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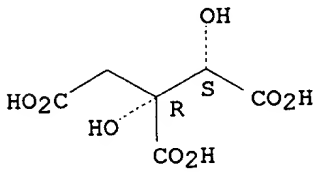
L5 ANSWER 1 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN 56323-60-5 REGISTRY
CN **threo-Pentaric acid, 3-C-carboxy-2-deoxy- (9CI)** (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **DL-threo-Pentaric acid, 3-C-carboxy-2-deoxy-**
FS STEREOSEARCH
MF **C6 H8 O8**
CI COM
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data)

Relative stereochemistry.



5 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
5 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 120:325687

REFERENCE 2: 114:117620

REFERENCE 3: 108:200777

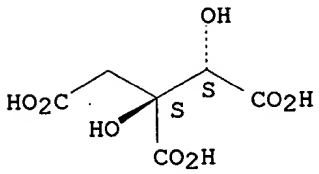
REFERENCE 4: 99:52977

REFERENCE 5: 83:55164

L5 ANSWER 2 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN 56323-59-2 REGISTRY
CN **erythro-Pentaric acid, 3-C-carboxy-2-deoxy- (9CI)** (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN **DL-erythro-Pentaric acid, 3-C-carboxy-2-deoxy-**

FS STEREOSEARCH
MF **C6 H8 O8**
CI COM
LC STN Files: BEILSTEIN*, CA, CAPLUS
(*File contains numerically searchable property data)

Relative stereochemistry.



3 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
3 REFERENCES IN FILE CAPLUS (1967 TO DATE)

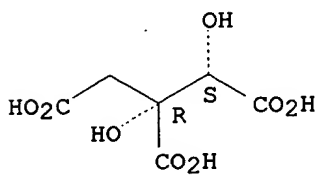
REFERENCE 1: 108:200777

REFERENCE 2: 99:52977

REFERENCE 3: 83:55164

L5 ANSWER 3 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN 27750-11-4 REGISTRY
CN **D-threo-Pentaric acid, 3-C-carboxy-2-deoxy- (9CI)** (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,2,3-Propanetricarboxylic acid, 1,2-dihydroxy-, (1S,2R)- (8CI)
OTHER NAMES:
CN (+)-allo-Hydroxycitric acid
CN (+)-Allohydroxycitric acid
CN allo-2-Hydroxycitric acid
CN allo-Hydroxycitric acid
CN Citric acid, 2-hydroxy-, allo-
CN Hibiscus acid
FS STEREOSEARCH
DR 23053-06-7
MF **C6 H8 O8**
CI COM
LC STN Files: AGRICOLA, BEILSTEIN*, BIOSIS, CA, CAPLUS, NAPRALERT, TOXLIT
(*File contains numerically searchable property data)

Absolute stereochemistry.



11 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
11 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 122:169713

REFERENCE 2: 114:77529.

REFERENCE 3: 100:134543

REFERENCE 4: 98:211981

REFERENCE 5: 97:68369

REFERENCE 6: 94:171129

REFERENCE 7: 90:199530

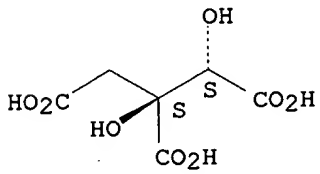
REFERENCE 8: 87:196199

REFERENCE 9: 83:55164

REFERENCE 10: 77:106453

L5 ANSWER 4 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN 27750-10-3 REGISTRY
CN D-erythro-Pentaric acid, 3-C-carboxy-2-deoxy- (8CI, 9CI) (CA INDEX NAME)
OTHER NAMES:
CN (-)-2-Hydroxycitric acid
CN (-)-Hydroxycitric acid
CN Citric acid, 2-hydroxy-, (-)-
CN Garcinia acid
CN **Hydroxycitric acid**
FS STEREOSEARCH
DR 4373-35-7
MF C6 H8 O8
CI COM
LC STN Files: AGRICOLA, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CAOLD, CAPLUS,
CIN, DDFU, DRUGU, EMBASE, HODOC*, IPA, NAPRALERT, NIOSHTIC, PROMT, TOXLIT, USPATFULL
(*File contains numerically searchable property data)

Absolute stereochemistry.



77 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
77 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 130:177001

REFERENCE 2: 130:163029

REFERENCE 3: 130:144169

REFERENCE 4: 130:119603

REFERENCE 5: 130:71524

REFERENCE 6: 129:330033

REFERENCE 7: 129:321142

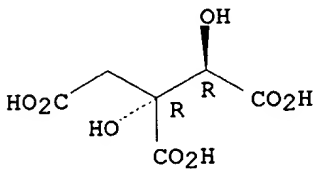
REFERENCE 8: 129:320956

REFERENCE 9: 129:281002

REFERENCE 10: 129:260404

L5 ANSWER 5 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN 6385-10-0 REGISTRY
CN **D-erythro-Pentaric acid, 3-C-carboxy-4-deoxy- (9CI)** (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,2,3-Propanetricarboxylic acid, 1,2-dihydroxy-, erythro-(+)- (8CI)
OTHER NAMES:
CN (+)-Hydroxycitric acid
FS STEREOSEARCH
DR 23053-07-8
MF **C6 H8 O8**
CI COM
LC STN Files: BEILSTEIN*, CA, CAOLD, CAPLUS, TOXLIT
(*File contains numerically searchable property data)

Absolute stereochemistry.



9 REFERENCES IN FILE CA (1967 TO DATE)
9 REFERENCES IN FILE CAPLUS (1967 TO DATE)
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 100:134543

REFERENCE 2: 98:211981

REFERENCE 3: 97:68369

REFERENCE 4: 87:196199

REFERENCE 5: 83:55164

REFERENCE 6: 80:45164

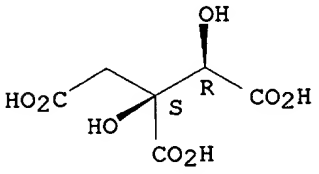
REFERENCE 7: 77:70871

REFERENCE 8: 77:59438

REFERENCE 9: 77:43252

L5 ANSWER 6 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN 6205-15-8 REGISTRY
CN **L-threo-Pentaric acid, 3-C-carboxy-2-deoxy- (9CI)** (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,2,3-Propanetricarboxylic acid, 1,2-dihydroxy-, L-threo- (8CI)
OTHER NAMES:
CN (-)-allo-Hydroxycitric acid
FS STEREOSEARCH
MF **C6 H8 O8**
CI COM
LC STN Files: BEILSTEIN*, CA, CAPLUS, TOXLIT
(*File contains numerically searchable property data)

Absolute stereochemistry. Rotation (-).



5 REFERENCES IN FILE CA (1967 TO DATE)
5 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 114:117620

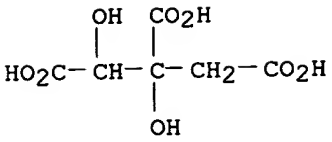
REFERENCE 2: 100:134543

REFERENCE 3: 98:211981

REFERENCE 4: 97:68369

REFERENCE 5: 87:196199

L5 ANSWER 7 OF 7 REGISTRY COPYRIGHT 1999 ACS
RN 6205-14-7 REGISTRY
CN Pentaric acid, 3-C-carboxy-2-deoxy- (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,2,3-Propanetricarboxylic acid, 1,2-dihydroxy- (7CI, 8CI)
OTHER NAMES:
CN Citric acid, hydroxy-
CN **Hydroxycitric acid**
FS 3D CONCORD
MF C6 H8 O8
CI COM
LC STN Files: AGRICOLA, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CANCERLIT, CAOLD, CAPLUS, CIN, CSCHEM, EMBASE, MEDLINE, PROMT, TOXLINE, TOXLIT
(*File contains numerically searchable property data)



15 REFERENCES IN FILE CA (1967 TO DATE)
15 REFERENCES IN FILE CAPLUS (1967 TO DATE)
3 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 130:177540

REFERENCE 2: 129:330033

REFERENCE 3: 126:237674

REFERENCE 4: 124:141131

REFERENCE 5: 111:149350

REFERENCE 6: 97:120487

REFERENCE 7: 96:30421

REFERENCE 8: 94:132779

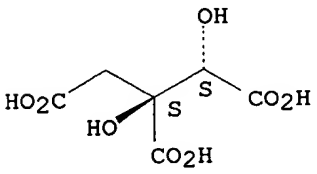
REFERENCE 9: 91:1924

REFERENCE 10: 83:202617

=> d ide can 17

L7 ANSWER 1 OF 1 REGISTRY COPYRIGHT 1999 ACS
RN 185196-38-7 REGISTRY
CN D-erythro-Pentaric acid, 3-C-carboxy-2-deoxy-, potassium salt (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF **C6 H8 O8 . x K**
SR CA
LC STN Files: CA, CAPLUS, TOXLIT, USPATFULL
CRN (27750-10-3)

Absolute stereochemistry.



x K

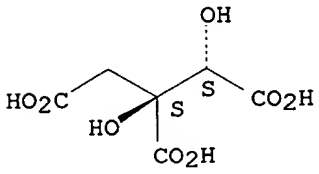
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:65382

=> d ide can 18 tot

L8 ANSWER 1 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 213385-58-1 REGISTRY
CN D-erythro-Pentaric acid, 3-C-carboxy-2-deoxy-, calcium salt (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C6 H8 O8 . x Ca
SR CA
LC STN Files: CA, CAPLUS, TOXLIT
CRN (27750-10-3)

Absolute stereochemistry.



●x Ca

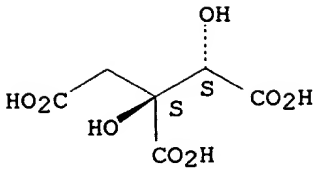
2 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 130:144169

REFERENCE 2: 129:265459

L8 ANSWER 2 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 185196-38-7 REGISTRY
CN D-erythro-Pentaric acid, 3-C-carboxy-2-deoxy-, potassium salt (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C6 H8 O8 . x K
SR CA
LC STN Files: CA, CAPLUS, TOXLIT, USPATFULL
CRN (27750-10-3)

Absolute stereochemistry.



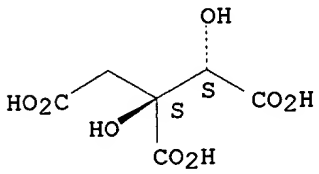
●x K

1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:65382

L8 ANSWER 3 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 132436-67-0 REGISTRY
CN D-threo-Pentaric acid, 3-C-carboxy-2-deoxy-, magnesium salt (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C6 H8 O8 . x Mg
SR CA
LC STN Files: CA, CAPLUS
CRN (27750-10-3)

Absolute stereochemistry.



●x Mg

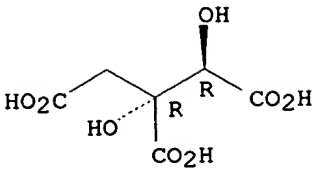
2 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 128:278299

REFERENCE 2: 114:117620

L8 ANSWER 4 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 90026-35-0 REGISTRY
CN D-erythro-Pentaric acid, 3-C-carboxy-4-deoxy-, calcium salt (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C6 H8 O8 . x Ca
LC STN Files: CA, CAPLUS, TOXLIT
CRN (6385-10-0)

Absolute stereochemistry.



●x Ca

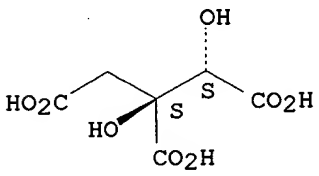
2 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 127:166780

REFERENCE 2: 100:187878

L8 ANSWER 5 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 90026-34-9 REGISTRY
CN erythro-Pentaric acid, 3-C-carboxy-2-deoxy-, calcium salt (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN DL-erythro-Pentaric acid, 3-C-carboxy-2-deoxy-, calcium salt
FS STEREOSEARCH
MF C6 H8 O8 . x Ca
LC STN Files: CA, CAPLUS
CRN (56323-59-2)

Relative stereochemistry.



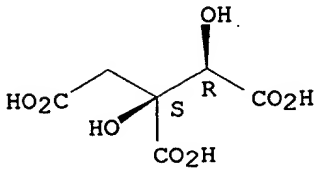
●x Ca

1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 100:187878

L8 ANSWER 6 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 90026-32-7 REGISTRY
CN L-threo-Pentaric acid, 3-C-carboxy-2-deoxy-, magnesium salt (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C6 H8 O8 . x Mg
LC STN Files: CA, CAPLUS
CRN (6205-15-8)

Absolute stereochemistry.



●x Mg

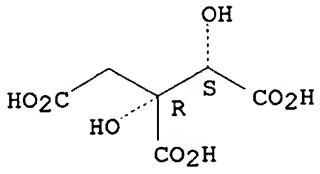
2 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 114:117620

REFERENCE 2: 100:187878

L8 ANSWER 7 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 90026-31-6 REGISTRY
CN threo-Pentaric acid, 3-C-carboxy-2-deoxy-, magnesium salt (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN DL-threo-Pentaric acid, 3-C-carboxy-2-deoxy-, magnesium salt
FS STEREOSEARCH
MF C6 H8 O8 . x Mg
LC STN Files: CA, CAPLUS
CRN (56323-60-5)

Relative stereochemistry.



●x Mg

2 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES IN FILE CAPLUS (1967 TO DATE)

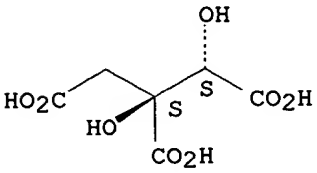
REFERENCE 1: 114:117620

REFERENCE 2: 100:187878

L8 ANSWER 8 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 90026-30-5 REGISTRY
CN erythro-Pentaric acid, 3-C-carboxy-2-deoxy-, magnesium salt (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN DL-erythro-Pentaric acid, 3-C-carboxy-2-deoxy-, magnesium salt

FS STEREOSEARCH
MF C6 H8 O8 . x Mg
LC STN Files: CA, CAPLUS
CRN (56323-59-2)

Relative stereochemistry.



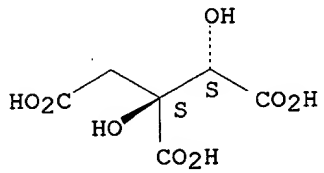
●x Mg

1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 100:187878

L8 ANSWER 9 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 64913-19-5 REGISTRY
CN Pentaric acid, 3-C-carboxy-2-deoxy-, sodium salt (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C6 H8 O8 . x Na
LC STN Files: CA, CAPLUS, TOXLIT
CRN (27750-10-3)

Absolute stereochemistry.



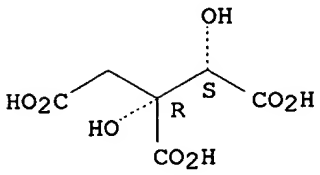
●x Na

1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 88:15887

L8 ANSWER 10 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 62961-65-3 REGISTRY
CN D-threo-Pentaric acid, 3-C-carboxy-2-deoxy-, trisodium salt (9CI) (CA INDEX NAME)
FS STEREOSEARCH
MF C6 H8 O8 . 3 Na
LC STN Files: CA, CAPLUS
CRN (27750-11-4)

Absolute stereochemistry.



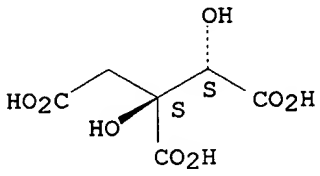
●3 Na

1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 86:186629

L8 ANSWER 11 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 52729-47-2 REGISTRY
CN D-erythro-Pentaric acid, 3-C-carboxy-2-deoxy-, trisodium salt (9CI) (CA INDEX NAME)
OTHER NAMES:
CN Trisodium (-)-hydroxycitrate
FS STEREOSEARCH
MF C6 H8 O8 . 3 Na
LC STN Files: CA, CAPLUS, TOXLIT
CRN (27750-10-3)

Absolute stereochemistry.



●3 Na

6 REFERENCES IN FILE CA (1967 TO DATE)
6 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 94:58336

REFERENCE 2: 86:186629

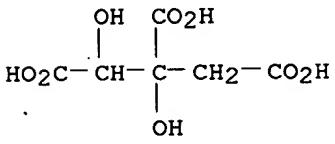
REFERENCE 3: 86:115256

REFERENCE 4: 86:101080

REFERENCE 5: 84:178641

REFERENCE 6: 81:21739

L8 ANSWER 12 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 30798-54-0 REGISTRY
CN Pentaric acid, 3-C-carboxy-2-deoxy-, trisodium salt (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,2,3-Propanetricarboxylic acid, 1,2-dihydroxy-, trisodium salt (8CI)
MF C6 H8 O8 . 3 Na
LC STN Files: CA, CAPLUS, IFICDB, IFIPAT, IFIUDB, TOXLIT
CRN (6205-14-7)



● 3 Na

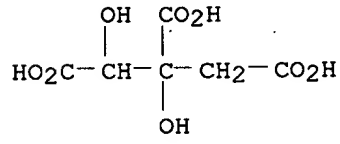
3 REFERENCES IN FILE CA (1967 TO DATE)
3 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 81:21740

REFERENCE 2: 81:21739

REFERENCE 3: 74:14421

L8 ANSWER 13 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 16719-04-3 REGISTRY
CN Pentaric acid, 3-C-carboxy-2-deoxy-, iron(3+) salt (1:1) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,2,3-Propanetricarboxylic acid, 1,2-dihydroxy-, iron(3+) salt (1:1) (8CI)
MF C6 H8 O8 . Fe
LC STN Files: CA, CAPLUS
CRN (6205-14-7)



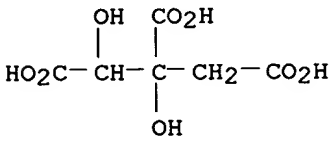
● Fe(III)

1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 67:4450

L8 ANSWER 14 OF 18 REGISTRY COPYRIGHT 1999 ACS

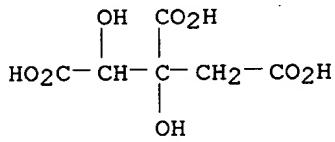
RN 14713-65-6 REGISTRY
CN Pentaric acid, 3-C-carboxy-2-deoxy-, cerium salt (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,2,3-Propanetricarboxylic acid, 1,2-dihydroxy-, cerium salt (8CI)
MF C6 H8 O8 . x Ce
LC STN Files: CAOLD
CRN (6205-14-7)



●x Ce(x)

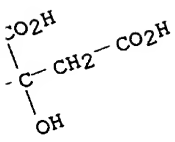
1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L8 ANSWER 15 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 14534-39-5 REGISTRY
CN Pentaric acid, 3-C-carboxy-2-deoxy-, zirconium salt (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,2,3-Propanetricarboxylic acid, 1,2-dihydroxy-, zirconium salt (8CI)
MF C6 H8 O8 . x Zr
CRN (6205-14-7)



●x Zr(x)

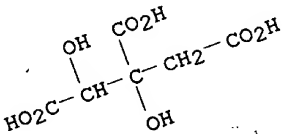
L8 ANSWER 16 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 14534-38-4 REGISTRY
CN Pentaric acid, 3-C-carboxy-2-deoxy-, yttrium salt (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,2,3-Propanetricarboxylic acid, 1,2-dihydroxy-, yttrium salt (8CI)
MF C6 H8 O8 . x Y
LC STN Files: CAOLD
CRN (6205-14-7)



x Y(x)

1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

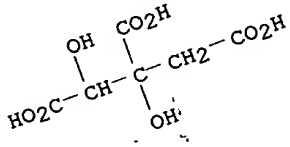
ANSWER 17 OF 18 REGISTRY COPYRIGHT 1999 ACS
14534-37-3 REGISTRY
Pentaric acid, 3-C-carboxy-2-deoxy-, dysprosium salt (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
1,2,3-Propanetricarboxylic acid, 1,2-dihydroxy-, dysprosium salt (8CI)
C6 H8 O8 . x Dy
STN Files: CAOLD
(6205-14-7)



x Dy(x)

1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

L8 ANSWER 18 OF 18 REGISTRY COPYRIGHT 1999 ACS
RN 14534-36-2 REGISTRY
CN Pentaric acid, 3-C-carboxy-2-deoxy-, gadolinium salt (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN 1,2,3-Propanetricarboxylic acid, 1,2-dihydroxy-, gadolinium salt (8CI)
MF C6 H8 O8 . x Gd
LC STN Files: CAOLD
CRN (6205-14-7)



x Gd(x)

L48 ANSWER 14 OF 52 USPATFULL
AN 1998:14823 USPATFULL
TI Method of treatment for carbohydrate addiction
IN Bernstein, Richard K., 1160 Greacen Point Rd., Mamaroneck, NY, United States 10543
PI US 5716976 19980210
AI US 96-615616 19960313 (8)
DT Utility
EXNAM Primary Examiner: Fay, Zohreh
LREP Kane, Dalsimer, Sullivan, Kurucz, Levy, Eisele and Richard
CLMN Number of Claims: 27
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 713
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method is described for alleviating carbohydrate addiction by administration of anorexients on a schedule that avoids tolerance to the anorexient.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
DETD . . . peculiar. On week one, 45 minutes before meals, three times a day, she takes one capsule of Citri-Max, which is **hydroxycitric** acid derived from the rind of the fruit of the **garcinia** cambulgia.
IT 51-63-8, Dexedrine 63-91-2, L-Phenylalanine, biological studies 134-80-5, Tenuate dospan 404-82-0, Pondimin 657-24-9, Metformin 4205-91-8, Catapres 14838-15-4, Phenylpropanolamine **27750-10-3**, Hydroxycitric acid 54739-18-3, Fluvoxamine
(anorexient treatment of carbohydrate addiction)
IT **27750-10-3**, Hydroxycitric acid
(anorexient treatment of carbohydrate addiction)

L48 ANSWER 15 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:754928 HCAPLUS
DN 130:163029
TI **Garcinia** cambogia (**hydroxycitric** acid) as a potential antiobesity agent. A randomized controlled trial
AU Heymsfield, Steven B.; Allison, David B.; Vasselli, Joseph R.; Pietrobelli, Angelo; Greenfield, Debra; Nunez, Christopher
CS Department of Medicine, Obesity Research Center, Columbia University College of Physicians and Surgeons, St Luke's-Roosevelt Hospital, New York, NY, 10025, USA
SO JAMA, J. Am. Med. Assoc. (1998), 280(18), 1596-1600
CODEN: JAMAAP; ISSN: 0098-7484
PB American Medical Association
DT Journal
LA English
AB Context-**Hydroxycitric** acid, the active ingredient in the herbal compd. **Garcinia** cambogia, competitively inhibits the extramitochondrial enzyme ATP-citrate (pro-3S)-lyase. As a citrate cleavage enzyme that may play an essential role in de novo lipogenesis inhibition, G cambogia is claimed to lower body wt. and reduce fat mass in humans. Objective-To evaluate the efficacy of G cambogia for body wt. and fat mass loss in overweight human subjects. Design-Twelve-week randomized, double-blind, placebo-controlled trial. Setting-Outpatient wt. control research unit. Participants-Overweight men and women subjects (mean body mass index [wt. in kilograms divided by the square of height in meters], approx. 32 kg/M2). Intervention-Subjects were randomized to receive either active herbal compd. (1500 mg of **hydroxycitric**

acid per day) or placebo, and both groups were prescribed a high-fiber, low-energy diet. The treatment period was 12 wk. Body wt. was evaluated every other week and fat mass was measured at weeks 0 and 12. Main Outcome Measures-Body wt. change and fat mass change. A total of 135 subjects were randomized to either active **hydroxycitric** acid or placebo; 42 (64%) in the active **hydroxycitric** acid group and 42 (61%) in the placebo group completed 12 wk of treatment. Patients in both groups lost a significant amt. of wt. during the 12-wk treatment period; however, between-group wt. loss differences were not statistically significant (mean [SD], 3.2 [3.3] kg vs. 4.1 [3.9] kg). There were no significant differences in estd. percentage of body fat mass loss between treatment groups, and the fraction of subject wt. loss as fat was not influenced by treatment group. Conclusions-**Garcinia** cambogia failed to produce significant wt. loss and fat mass loss beyond that obsd. with placebo.

ST **hydroxycitrate Garcinia ext** antiobesity

IT Adipose tissue
Antiobesity agents
Body weight
Garcinia cambogia
(**hydroxycitric** acid derived from **Garcinia** cambogia fails to produce significant antiobesity effects in humans)

IT **27750-10-3, Hydroxycitric** acid
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**hydroxycitric** acid derived from **Garcinia** cambogia fails to produce significant antiobesity effects in humans)

IT **27750-10-3, Hydroxycitric** acid
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**hydroxycitric** acid derived from **Garcinia** cambogia fails to produce significant antiobesity effects in humans)

L48 ANSWER 16 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1999:130097 HCAPLUS
TI Quantitative analysis of (-)**hydroxy citric** acid and (-)**hydroxy citric** acid lactone in **Garcinia** fruits and **Garcinia** products
AU Antony, J. I. X.; Josan, P. D.; Shankaranarayana, M. L.
CS Kancor Flavours and Extracts Limited, Angamally South, 683 573, India
SO J. Food Sci. Technol. (1998), 35(5), 399-402
CODEN: JFSTAB; ISSN: 0022-1155
PB Association of Food Scientists and Technologists (India)
DT Journal
LA English
AB A combined approach of titrimetry and HPLC for the detemination of (-) **hydroxy citric** acid (HCA), (-) **hydroxy citric** acid lactone (HCAL) and citric acid using selectively prepd. samples of calcium **hydroxy citrates** with and without the corresponding lactone is described. The method consisted of detg. total acids by titrating against std. alkali and citric acid by HPLC in a sample of calcium **hydroxy citrate** not contg. lactone. From the difference in values, HCA contents were calcd. In a sample of calcium **hydroxy citrate** contg. lactone, HCA contents were detd. by HPLC. Similarly, HCA content were detd. in a corresponding sample after total conversion of lactone to HCA. From the difference in values, HCAL contents were calcd. Thus, both HCA and HCAL stds. could be prepd. and used in expts. Finally, HPLC method were employed in the detn. of HCA, HCAL and citric acid in **Garcinia**

fruit rinds and **Garcinia** products.

L48 ANSWER 17 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:306355 HCAPLUS
DN 129:65034
TI Determination of organic acids in **Garcinia** cambogia (Desr.) by high-performance liquid chromatography
AU Jayaprakasha, G. K.; Sakariah, K. K.
CS Human Resource Development, Central Food Technological Research Institute, Mysore, 570 013, India
SO J. Chromatogr., A (1998), 806(2), 337-339
CODEN: JCRAEY; ISSN: 0021-9673
PB Elsevier Science B.V.
DT Journal
LA English
AB The major org. acid in **Garcinia** cambogia (Malabar tamarind) is (-)-**hydroxycitric** acid, present in concns. of 16-18%, using HPLC with 10 mM H2SO4 as eluent. Citric and malic acids are present in Malabar tamarind in minor quantities.
ST org acid detn **Garcinia** cambogia HPLC
IT **Garcinia** cambogia
HPLC
(detn. of org. acids in **Garcinia** cambogia (Desr.) by high-performance liq. chromatog.)
IT Organic acids
RL: ANT (Analyte); ANST (Analytical study)
(detn. of org. acids in **Garcinia** cambogia (Desr.) by high-performance liq. chromatog.)
IT 77-92-9, Citric acid, analysis 6915-15-7, Malic acid **27750-10-3**, (-)-**Hydroxycitric** acid
RL: ANT (Analyte); ANST (Analytical study)
(detn. of org. acids in **Garcinia** cambogia (Desr.) by high-performance liq. chromatog.)
IT **27750-10-3**, (-)-**Hydroxycitric** acid
RL: ANT (Analyte); ANST (Analytical study)
(detn. of org. acids in **Garcinia** cambogia (Desr.) by high-performance liq. chromatog.)

L48 ANSWER 18 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1997:558768 HCAPLUS
DN 127:166780
TI Compositions containing L-carinthine or acyl carinthine for lipid metabolism disorer
IN Cavazza, Claudio
PA Sigma-Tau Industrie Farmaceutiche Riunite S.P.A., Italy
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09176004	A2	19970708	JP 96-330682	19961211
	EP 787489	A2	19970806	EP 96-830617	19961211
	EP 787489	A3	19970910		
	R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
	CA 2192899	AA	19970616	CA 96-2192899	19961213

PRAI IT 95-RM824 19951215
AB Compns. for lipid metab. disorer contain L-carinthine or acyl carinthine (preferably C2-6 straight or branched acyl) or their pharmaceutically acceptable salts, hydroxycitric acid or pantothenic acid or their derivs. and pharmaceutically acceptable vehicles. Compns. may also contain **Garcinia** exts. Prepns. for oral, parenteral, transcutaneous or rectal administration also are claimed.
IT Atherosclerosis
Capsules (drug delivery systems)
Cardiovascular diseases
Eating disorders
Garcinia citrina
Garcinia indica
Granules (drug delivery systems)
Hyperlipidemia
Injections (drug delivery systems)
Liposomes (drug delivery systems)
Oral drug delivery systems
Parenteral solutions (drug delivery systems)
Powders (drug delivery systems)
Tablets (drug delivery systems)
Thrombosis
Topical drug delivery systems
Transdermal drug delivery systems
(compns. contg. L-carinthine or acyl carinthine for lipid metab. disorer)
IT **Garcinia**
Garcinia atroviridis
Garcinia cambogia
(exts.; compns. contg. L-carinthine or acyl carinthine for lipid metab. disorer)
IT 79-83-4, Pantothenic acid 496-65-1, Pantetheine 541-15-1 2226-71-3 3040-38-8 5875-50-3, Pantothenic acid 4'-Phosphate 7196-09-0, 4'-Phosphopantothenylcysteine 16816-67-4, Pantethine 20064-19-1, Propionyl L-Carnitine 25576-40-3, Butyryl L-Carnitine 27750-10-3, Hydroxycitric acid **90026-35-0**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(compns. contg. L-carinthine or acyl carinthine for lipid metab. disorer)
IT **90026-35-0**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(compns. contg. L-carinthine or acyl carinthine for lipid metab. disorer)

L48 ANSWER 19 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1997:224033 HCAPLUS
DN 126:237674
TI Health food containing **Garcinia** cambogia **extract** for controlling body weight
IN Nishida, Hiroshi
PA Nishida Hiroshi, Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09051779	A2	19970225	JP 95-206089	19950811

AB The health food contains G. cambogia **ext.** 30-70, borage seed oil 1-8, and pepper powder 1-4 % by wt. G. cambogia **ext.** rich in **hydroxycitric** acid prevents fat biosynthesis and produces glycogen, .gamma.-linolenic acid in the borage seed oil stimulates brown fat cells and produces heat, while the pepper also increases heat which enhances glycogen metab. These components act synergistically against obesity.

ST health food **Garcinia ext** obesity

IT Fats and Glyceridic oils
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(borage seed; health food contg. **Garcinia** cambogia **ext.** and oil for controlling body wt.)

IT Health food
(contg. **Garcinia** cambogia **ext.** and oil for controlling body wt.)

IT Obesity
(health food contg. **Garcinia** cambogia **ext.** and oil for controlling body wt.)

IT **Garcinia** cambogia
(health food contg. **Garcinia** cambogia **ext.** for controlling body wt.)

IT **6205-14-7**
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(in health food contg. **Garcinia** cambogia **ext.** and oil for controlling body wt.)

IT **6205-14-7**
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(in health food contg. **Garcinia** cambogia **ext.** and oil for controlling body wt.)

L48 ANSWER 20 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1997:720056 HCAPLUS
DN 127:351178
TI Dietary composition containing chitosan, **Garcinia** cambogia **hydroxycitrate**, and organic chromium
IN Littera, Renato
PA Sirc S.P.A. Natural & Dietetic Foods, Italy
SO Eur. Pat. Appl., 6 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 803202	A2	19971029	EP 97-830189	19970424
	EP 803202	A3	19980429		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO

PRAI IT 96-RM279 19960426

AB The use of prepns. based on the combination of chitosan with org. chromium and **Garcinia** cambogia **hydroxycitrate** as dietary products for the treatment of obesity having hypocholesteremic and sugar absorption reducing activity is disclosed. The proposed combination of chitosan with org. chromium and **Garcinia** cambogia **hydroxycitrate** is formulated on the base of the effects that the above three components have on the glucid metab. Such effects tends particularly to decrease the values of cholesterolemia and triglycerides in case they are too high. The integrator of the invention can be administered by mouth in the usual dose unit both as capsules and tablets

and is efficacious as diet integrator in the wt. reducing programs aiming at calorie restrictions in obese subjects, in the treatment of hypertension, and as hypocholesteremic product.

ST chitosan **Garcinia** chromium antiobesity hypocholesterolemic

IT Anticholesteremic agents
Antiobesity agents
Garcinia cambogia
Obesity
(dietary compn. contg. chitosan, **Garcinia** cambogia **hydroxycitrate**, and org. chromium)

IT Glycerides, biological studies
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(dietary compn. contg. chitosan, **Garcinia** cambogia **hydroxycitrate**, and org. chromium)

IT 9012-76-4, Chitosan **27750-10-3, Hydroxycitric** acid
RL: BAC (Biological activity or effector, except adverse); FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dietary compn. contg. chitosan, **Garcinia** cambogia **hydroxycitrate**, and org. chromium)

IT 57-88-5, Cholesterol, biological studies
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(dietary compn. contg. chitosan, **Garcinia** cambogia **hydroxycitrate**, and org. chromium)

IT 7440-47-3, Chromium, biological studies
RL: BAC (Biological activity or effector, except adverse); FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(org.; dietary compn. contg. chitosan, **Garcinia** cambogia **hydroxycitrate**, and org. chromium)

IT **27750-10-3, Hydroxycitric** acid
RL: BAC (Biological activity or effector, except adverse); FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dietary compn. contg. chitosan, **Garcinia** cambogia **hydroxycitrate**, and org. chromium)

L48 ANSWER 21 OF 52 USPATFULL
AN 97:70759 USPATFULL
TI **Hydroxycitric** acid concentrate and food products prepared therefrom
IN Moffett, Scott Alexander, 12730 Mulholland Dr., Beverly Hills, CA, United States 90210
Bhandari, Ashok Kumar, 2/4A Kensington Road, Bangalore, India 560042
Ravindranath, Bhagavathula, 714, 7th Main Road, J. P. Nagar III phase, Bangalore, India 560078
Balasubramanvam, Karanam, 7971, 2nd Main, IIIrd Block, Thyagaraja Nagar, Bangalore, India 560 028
PI US 5656314 19970812
AI US 96-633921 19960417 (8)
RLI Continuation of Ser. No. US 94-295281, filed on 24 Aug 1994, now patented, Pat. No. US 5536516
DT Utility
EXNAM Primary Examiner: Pratt, Helen
LREP Fish & Richardson P.C.
CLMN Number of Claims: 17
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 466
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A **hydroxycitric** acid concentrate prepared from **Garcinia** rind including 23 to 54% by weight free

hydroxycitric acid, 6 to 20% by weight lactone of **hydroxycitric** acid, 0.001 to 8% by weight citric acid, and 32 to 70% by weight water, wherein the free **hydroxycitric** acid, the lactone of **hydroxycitric** acid and the citric acid constitute 94 to 99% by weight of total solutes dissolved in the water. Also disclosed is a method of preparing such a concentrate from **Garcinia** rind, as well as food products containing **hydroxycitric** acid.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

SUMM **Hydroxycitric** acid, both free acid and lactone forms, is present in the fruit rind, of **Garcinia** species (e.g., **Garcinia** cambogia, **Garcinia** atroviridis, and **Garcinia** indica), which are commercially available in India.

SUMM As an inhibitor of the synthesis of fat and cholesterol, **hydroxycitric** acid has been shown to significantly reduce the body weight and lower lipid accumulation in rats. See, e.g., Sergio, W.,. . . and Sullivan, A. C. et al., Lipids 9: 121 (1973); and Sullivan, A. C. et al., Lipids 9: 129 (1973). **Hydroxycitric** acid is also the only known anorectic agent found as a natural constituent of edible foods consumed by humans.

SUMM Methods for the extraction and purification of **hydroxycitric** acid from **Garcinia** rind can be found in Lewis, Y. S., Methods in Enzymology 13: 613 (1967); and Indian Patent No. 160753.

SUMM One aspect of this invention relates to a **hydroxycitric** acid concentrate prepared from the fruit rind of the **Garcinia** genus (e.g., **Garcinia** cambogia, **Garcinia** atroviridis, and **Garcinia** indica). The concentrate comprises 23 to 54% (preferably, 32 to 48%; and particularly preferably, 36-45%) by weight free **hydroxycitric** acid, 6 to 20% (preferably, 10 to 18%; and particularly preferably, 13 to 16%) by weight lactone of **hydroxycitric** acid, 0.001 to 8% (preferably, 0.001 to 6%; and particularly preferably, 0.001 to 3%) by weight citric acid, and 32 to 70% (preferably, 35 to 55%; and particularly preferably, 38 to 50%) by weight water, wherein the free **hydroxycitric** acid, the lactone of **hydroxycitric** acid and the citric acid constitute 94 to 99% (preferably, 96 to 99%; and particularly preferably, 98 to 99%) by. . .

SUMM Another aspect of this invention relates to a process of enriching **hydroxycitric** acid from **Garcinia** rind. The process comprises (1) obtaining a salt-free water extract of the **Garcinia** rind, (2) loading the extract on to an anion exchange column for adsorption of the **hydroxycitric** acid onto the anion exchange column, (3) eluting the **hydroxycitric** acid from the anion exchange column with a Group IA metal hydroxide (i.e., LiOH, NaOH, KOH, RbOH, CsOH or FrOH) for release of the **hydroxycitric** acid as a metal salt in a first solution, and (4) loading the first solution on to a cation exchange. . .

SUMM The salt-free water extract used in the above process can be prepared by first extracting salted **Garcinia** rind and subsequently removing the salt with a water miscible organic solvent (e.g., acetone or ethyl alcohol). As to the. . .

SUMM . . . such as a beverage or a snack bar, which comprises 0.17 to 23% (preferably, 0.35 to 12%) by weight free **hydroxycitric** acid, 0.08 to 7% (preferably, 0.15 to 4%) by weight lactone of **hydroxycitric** acid, and at least 0.0002% (up to a proper content, e.g., 2% by weight) by weight citric acid. Preferably, the **hydroxycitric** acid and its lactone are from **Garcinia** rind. In an embodiment, the food product further comprises 0.04 to 0.4%

(preferably, 0.04 to 0.08%) by weight vitamin C. . .

SUMM The contents of free **hydroxycitric** acid, lactone of **hydroxycitric** acid, citric acid, and non-acid solutes can be determined by the methods described in Example 4 below or equivalents thereof.

SUMM A preferred process of this invention for enriching **hydroxycitric** acid from **Garcinia** rind includes preparing a salt-free water extract of **Garcinia** rind; loading the extract on to an anion exchange resin column for adsorption of **hydroxycitrate** ion on the anion resin and removal of nonionizing and nonacidic impurities in the extract, such as sugar, pectins, gum and color (which pass out unadsorbed); washing the anion column with water to ensure purity of **hydroxycitrate** ion; adding a sodium hydroxide solution to the anion exchange resin column for release of the **hydroxycitrate** ion in the form of sodium **hydroxycitrate** salt in a solution; converting the solution of sodium **hydroxycitrate** salt to free **hydroxycitric** acid by passing the solution through a cation exchange resin column; decoloring the **hydroxycitric** acid solution with activated charcoal; and, finally, concentrating the **hydroxycitric** acid solution to a predetermined concentration.

SUMM The salt-free water extract can be prepared from. salt-free **Garcinia** rind by cross-current or counter-current method. It can also be prepared from salted **Garcinia** rind by extracting the rind with water preferably in multiple steps (by cross-current or counter-current method), treating the extract with. . . pectin, salt and other insoluble substances, and removing acetone by evaporation. Alternatively, one can treat the water extract of salted **Garcinia** obtained from cross-current or counter-current method with calcium hydroxide solution to precipitate the insoluble salt of calcium **hydroxycitrate**, dilute the precipitate with cold water, filter it to eliminate the salt and other impurities, treat the precipitate with sulphuric acid to convert the calcium **hydroxycitrate** to calcium sulphate and **hydroxycitric** acid, and finally filter out the calcium sulphate precipitate. The salt-free water extract can optionally be prepared by passing the water extract of salted **Garcinia** rind obtained from cross-current or counter-current method through an anion exchange column for adsorption of the chloride ion on the. . .

SUMM 500 ml.times.1.5 meq/ml.times.208 g/3 eq=52 g (Note that **hydroxycitric** acid has a molecular weight of 208 daltons and has 3 eq acid groups.)

SUMM . . . cation exchange column is usually further treated by charcoal and concentrated by vacuum evaporation to about 55% by weight free **hydroxycitric** acid. A typical **hydroxycitric** acid concentrate obtained by the process of this invention is an aqueous solution of **hydroxycitric** acid containing 55 to 56% by weight total acids, of which 98 to 99% is total **hydroxycitric** acid (whether in the free acid or lactone form) and 1 to 2% is mostly citric acid. The concentrate also. . .

DETD Water extraction of salted **Garcinia** rind by the procedure commonly referred to as counter current extraction was carried out in 3 vessels marked vessel 1 to vessel 3. For the first cycle of operation, **garcinia** rind of 2 to 5 mm size was added to each vessel. In each vessel, 1.25 liters of 95.degree. C.. . .

DETD . . . final product. After four cycles, all extracts reached steady compositions. On the fifth cycle, for an input of 750 g **garcinia** rind, the product obtained was 850 ml of liquid.

DETD . . . and third extractions and finally discarded. More specifically,

the extraction flask was charged with 0.5 liters of aqueous extract of **Garcinia** rind of approximately 60% soluble solids containing 149 g of total acids. It was extracted by using one liter of. . . pure acetone and the first extract was separated from the lower aqueous residue layer containing pectins, gums and some unextracted **hydroxycitric** acid. The same lower layer is subjected to second extraction using 750 ml of acetone water mixture containing 16.7% water.. . .

DETD . . . cation exchange column, respectively. The anion column, which had a capacity of 458 g, was charged with 507 g of **hydroxycitric** acid, giving a loading capacity of 111%. On the other hand, the anion column, which had a capacity of 762.6 g, was charged with sodium salt made from 493 g of **hydroxycitric** acid, giving a loading capacity of 65%.

DETD More specifically, 1.6 liters of acetone refined **Garcinia** extract was diluted to 6.4 liters (containing 507 g) of acid was passed through the anion exchange column. The anion. . . anion exchange column. The alkali converted the acid held on the anion exchange column into a water soluble salt, sodium **hydroxycitrate**, which was liberated. The anion exchange column was subsequently washed with 5 liters of water to release any salt remaining. . .

DETD The sodium **hydroxycitrate** solution was then passed through the cation exchange column where the salt was converted to free **hydroxycitric** acid. The material coming out of the cation exchange column was the final product, 11 liters containing 479 g of. . .

DETD **Garcinia** rind was obtained in the salt-free state from the forest area of Sirsi District, South Karnataka. The rind had 14% moisture and 19.2% **hydroxycitric** acid. Extraction was carried out by three-stage batch process. More specifically, 1 kg of rind was taken in a stainless-steel. . .

DETD 1,500 ml of the salt free extract containing 65 g of **hydroxycitric** acid was passed slowly through 500 ml anion exchange resin column. The impurities came off as breakthrough. The resin was. . . with the breakthrough. The amount of acids present in the breakthrough was 6.53 g. In other words, 58.47 g of **hydroxycitric** acid was held on to 500 ml of anion exchange column. The anion resin was washed with 10 column volumes. . .

DETD 70 g of sodium hydroxide in 1,500 ml of water was then passed through the anion resin. The salt, sodium **hydroxycitrate**, was formed, releasing the **hydroxycitrate** ion from the resin. The resin was washed with 2-5 column volumes of water. The effluent from the anion exchange. . . cation exchange resin column. Here, Na.sup.+ ion was held up by releasing H.sup.+ ion from the resin to give free **hydroxycitric** acid, which was collected in a volume of 2,000 ml. 56.55 g of **hydroxycitric** acid was recovered, giving a recovery percentage of 96.6%.

DETD 200 ml of **Garcinia** water extract, containing 61.4 g of organic acids, was precipitated with 33.4 g of CaOH to get calcium **hydroxycitrate**. The precipitate was then diluted with about 300 ml of cold water and filtered under vacuum. The wet precipitate obtained, on drying at 60.degree. C. for 16 hours, gave 83.5 g of dry calcium **hydroxycitrate**. The calcium **hydroxycitrate** was converted to **hydroxycitric** acid and calcium sulphate by adding 369 ml of 2.5N sulphuric acid. Calcium sulphate precipitate was removed by centrifugation at. . .

DETD 53 g of **hydroxycitric** acid was present in 355 ml of supernatant and the recovery was 87.6%.

DETD 150 ml of solution containing 22.4 g of **hydroxycitric** acid was

passed through 200 ml of anion exchange resin to saturate the column. The column was washed with demineralized. . . water and 240 ml of 5% sodium hydroxide solution was passed through the column to get 800 ml of sodium **hydroxycitrate** solution. 800 ml of the above solution was passed through 400 ml of cation exchange resin. 1240 ml of solution containing 18.84 g of **hydroxycitric** acid was obtained. The overall recovery of 18.84 g of **hydroxycitric** acid from the cation exchange column indicated a yield of 90.5%.

DETD The above solution after charcoal treatment and concentration under vacuum at 72.degree. C. to 55% by weight of **hydroxycitric** acid gave a **hydroxycitric** acid concentrate which was stable for months.

DETD The composition of an exemplary **hydroxycitric** acid concentrate prepared from **Garcinia** rind by the process of this invention is shown below:

DETD Preparation of fiber snack bars and natural beverages from a **hydroxycitric** acid concentrate of this invention involves the steps of diluting the concentrate in water, adding supplements, blending, heating, and periodic. . .

DETD . . . for the development of this product is in a industrial kitchen with the use of large cooking pots. The diluted **hydroxycitric** acid solution is blended with water, covered and heated, bringing it to a boil for about 15 minutes. The bubbles. . .

DETD For example, the **hydroxycitric** acid concentrate of this invention can be formulated with ginger extract or licorice extract in a liquid concentrate form. Similarly, it can be used to make lozenges with **hydroxycitric** acid, herbal extracts, or a variety of nutrients and flavors.

CLM What is claimed is:

1. A **hydroxycitric** acid concentrate prepared from **Garcinia** rind, said concentrate comprising 23 to 54% by weight free **hydroxycitric** acid, 6 to 20% by weight lactone of **hydroxycitric** acid, 0.001 to 8% by weight citric acid, and 32 to 70% by weight water, wherein said free **hydroxycitric** acid, said lactone of **hydroxycitric** acid and said citric acid constitute 94 to 99% by weight of total solutes dissolved in said water.

2. The **hydroxycitric** acid concentrate of claim 1 comprising 32 to 48% by weight free **hydroxycitric** acid, 10 to 18% by weight lactone of **hydroxycitric** acid, 0.001 to 6% by weight citric acid, and 35 to 55% by weight water, in which said free **hydroxycitric** acid, said lactone of **hydroxycitric** acid and said citric acid constitute 96 to 99% by weight of total solutes dissolved in said water.

3. The **hydroxycitric** acid concentrate of claim 2 comprising 36-45% by weight free **hydroxycitric** acid, 13 to 16% by weight lactone of **hydroxycitric** acid, 0.001 to 3% by weight citric acid, and 38 to 50% by weight water, wherein said free **hydroxycitric** acid, said lactone of **hydroxycitric** acid and said citric acid constitute 98 to 99% by weight of total solutes dissolved in said water.

4. A food product comprising 0.17 to 23% by weight free **hydroxycitric** acid, 0.08 to 7% by weight lactone of **hydroxycitric** acid, and at least 0.0002% by weight citric acid.

5. The food product of claim 4 comprising 0.35 to 12% by weight free **hydroxycitric** acid, 0.15 to 4% by weight lactone of

hydroxycitric acid, and at least 0.0002% by weight citric acid.

IT **Garcinia**
(rind; concn. of hydroxycitric acid from Garcinia rind)
IT **27750-10-3P**, Hydroxycitric acid
(prepn. of hydroxycitric acid conc.)
IT **27750-10-3P**, Hydroxycitric acid
(prepn. of hydroxycitric acid conc.)

L48 ANSWER 22 OF 52 USPATFULL
AN 97:22486 USPATFULL
TI Dietary supplement
IN Policappelli, Nini E., 361 N. Robertson Blvd., Los Angeles, CA, United States 90048
Garzone, Rafaele, Bari, Italy
Russo, Claudio, Bari, Italy
PA Policappelli, Nini E., Los Angeles, CA, United States (U.S. individual)
PI US 5612039 19970318
AI US 95-426677 19950421 (8)
RLI Continuation-in-part of Ser. No. US 94-212246, filed on 14 Mar 1994, now abandoned And a continuation-in-part of Ser. No. US 94-303533, filed on 9 Sep 1994, now abandoned And a continuation-in-part of Ser. No. US 94-344180, filed on 23 Nov 1994, now abandoned
DT Utility
EXNAM Primary Examiner: Rollins, John W.
LREP Merchant, Gould, Smith, Edell, Welter & Schmidt
CLMN Number of Claims: 11
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 576
AB A composition for dietary supplementation includes the following three compositions: The first composition is Germander (Teucrium Chamaedrys Herba), Camelia Tea (Camelia Thea Folia), and Spirulina (Spirulina Maxima); the second composition is **Garcinia** Gambogia, dry extract (**Garcinia** Cambogia Fructuse), Brown Algae, dry extract (Fucus Vesicolosus), and Germander (Teucrium Chamaedrys Herba); the third composition is **Garcinia** Gambogia, dry extract (**Garcinia** Cambogia Fructuse), Brown Algae, dry extract (Fucus Vesicolosus), and Orthosiphon, dry extract (Orthosiphon Stamineus Folia), respectively. Additionally, there is a fourth composition including Common Bean (Phaseolus Vulgaris Fructus), **Garcinia** Cambogia, dry extract (**Garcinia** Cambogia Fructus), Pineapple, dry extract (Ananas Sativus Stipites), Gymnema Sylvestre, dry extract (Gymnema Sylvestre Folia), and Chromium Dinicotinate (Chromium).

SUMM . . . formulations are possible for maintaining a weight condition and for losing weight. For losing weight, the formulation can include Gamboge (**Garcinia** hanburi; Guttiferae), dried algae extract (fucus estratto secco--alga bruna), and java tea (Orthosifono the di Giava) as a composition to. . .
SUMM The invention is further directed to having the Gamboge (**Garcinia** hanburi; Guttiferae), with a **hydroxycitric** acid content at a concentration level greater than about 550 milligrams/per gram. Preferably, the **hydroxycitric** acid content is between about 550 and 700 milligrams/per gram. The **Garcinia** Cambogia with the **hydroxycitric** acid extract of this content is achieved by treating the **Garcinia** Cambogia with hot water under pressure. With **Garcinia** Cambogia having

this content, there is greater ability to reduce appetite and assist in function of dietary control.

SUMM

Breakfast
Germander (Teucrium Chamaedrys Herba)
Camelia Tea (Camelia Thea Folia)
Spirulina (Spirulina Maxima)
Lunch
Garcinia Gambogia, dry extract (**Garcinia** Cambogia Fructuse)
Brown Algae, dry extract (Fucus Vesicolosus)
Germander (Teucrium Chamaedrys Herba)
Dinner
Garcinia Gambogia, dry extract (**Garcinia** Cambogia Fructuse)
Brown Algae, dry extract (Fucus Vesicolosus)
Orthosiphon, dry extract (Orthosiphon Stamineus Folia)

SUMM Additionally, there is a fourth composition for lunch and dinner. This has the formulation Common Bean (Phaseolus Vulgaris Fructus), **Garcinia** Cambogia, dry extract (**Garcinia** Cambogia Fructus), Pineapple, dry extract (Ananas Sativus Stipites), Gymnema Sylvestre, dry extract (Gymnema Sylvestre Folia), and Chromium Dinicotinate (Chromium).

DETD GAMBOGE (**Garcinia** hanburi; Guttiferae)

DETD Calcium salt of **Garcinia** Cambogia-**hydroxycitric** acid extract is used for the dietary supplement purposes.

DETD Approximately 550 to 700 mg of **hydroxycitrate** per gram of material (.about.50% (-)IICA) is used. The product can be characterized with the following specifications:

DETD . . . less than 70%
Clarity (Upon dissolution
Clear with residue
at 10 mg/cc H.sub.2 O)
Ph (1% solution) 6.0-8.0
Organic Acid Content (mg/gm)
550 .+-. 50
(-) **Hydroxycitric** Acid
550 .+-. 700
Content (mg/gm)
Calcium Content (mg/gm)
120 .+-. 30
Heavy Metals:
Pb (ppm) Less than 10
Particle Size:
Wt % Retained on NMT. . .
DETD . . . preferred size of this overall capsule is 750-850 mg. The preferred quantity of each component is about the center of each range.
Dinner
Gamboge (**garcinia** gamboge;
about 120 to about 280
gummi gutta)
Alga bruna (brown algae)
about 110 to about 280
Faglio proteine (bean protein)
about 80. . . vergine (camellia tea)
about 120 to about 280
Camedrio (germander) about 90 to about 280
Spirulina (seaweed) or
about 90 to about 280

Garcinia gamboge gummi gutta
about 300 to about 600
The preferred size of this overall capsule is 600-750 mg.
The preferred quantity of each component is about the center of each range.
Dinner
Gamboge (**garcinia** gamboge;
about 300 to about 600
gummi gutta)
Alga bruna (brown algae)
about 60 to about 200
Orthosifono the di Giava (java tea)
. . .

DETD	
Phaseolus-Vulgaris	140-550 mg
Garcinia Cambogia	50-250 mg
Ananas-Sativus	75-175 mg
Chromium	.001 mg-.015 mg
Gimnema - Silvestre	50-130 mg

The Chromium is a metal mineral.

DETD . . . Herba)
Camelia Tea (Camelia Thea Folia)
Spirulina (Spirulina Maxima)
This is contained in a 600 mg capsule.
Before lunch, a composition with the following formula:
Garcinia Gambogia, dry extract (**Garcinia** Cambogia Fructuse)
Brown Algae, dry extract (Fucus Vesicolosus)
Germander (Teucrium Chamaedrys Herba)
This is contained in a 750 mg capsule.
Before dinner, a composition with the following formula:
Garcinia Gambogia, dry extract (**Garcinia** Cambogia Fructuse)
Brown Algae, dry extract (Fucus Vesicolosus)
Orthosiphon, dry extract (Orthosiphon Stamineus Folia)
This is contained in a 750 mg capsule.
Additionally, before lunch and dinner the following composition should be taken:
Common Bean (Phaseolus Vulgaris Fructus)
Garcinia Cambogia, dry extract (**Garcinia** Cambogia Fructus)
Pineapple, dry extract (Ananas Sativus Stipites)
Gymnema Sylvestre, dry extract (Gymnema Sylvestre Folia)
Chromium Dinicotinate (Chromium).
This is contained in a 850. . .

CLM What is claimed is:

. . . the first composition including Teucrium Chamaedrys Herba, Camelia Thea Folia, and Spirulina Maxima; the second composition including dry extract of **Garcinia** Cambogia Fructuse, dry extract of Fucus Vesicolosus, and Teucrium Chamaedrys Herba; and the third composition including dry extract of **Garcinia** Cambogia Fructuse, dry extract of Fucus Vesicolosus, and dry extract of Orthosiphon Stamineus Folia.

2. A dietary formulation comprising at least four compositions, the first composition including Teucrium Chamaedrys Herba, Camelia Thea Folia, and Spirulina Maxima; the second composition including dry extract of **Garcinia** Cambogia Fructuse, dry extract of Fucus Vesicolosus, and Teucrium Chamaedrys Herba; the third composition including dry extract of **Garcinia** Cambogia Fructuse, dry extract of Fucus Vesicolosus, and dry extract of Orthosiphon Stamineus

Folia; and the fourth composition including Phaseolus Vulgaris Fructus, dry extract of **Garcinia** Cambogia Fructus, dry extract of Ananas Sativus Stipites, dry extract of Gymnema Sylvestre Folia, and Chromium Dinicotinate.

. . . and about 90 to 280 Spirulina Maxima; the second composition including about 300 to 600 mg of dry extract of **Garcinia** Cambogia Fructuse, about 110 to 280 mg dry extract of Fucus Vesicolosus and about 90 to 280 mg Teucrium Chamaedrys Herba; and the third composition including about 300 to 600 mg of dry extract of **Garcinia** Cambogia Fructuse, about 60 to 200 mg of dry extract of Fucus Vesicolosus and about 100 to 280 mg of. . .

. . . and about 90 to 280 Spirulina Maxima; the second composition including about 300 to 600 mg of dry extract of **Garcinia** Cambogia Fructuse, about 110 to 280 mg dry extract of Fucus Vesicolosus, and about 90 to 280 mg Teucrium Chamaedrys Herba; and the third composition including about 300 to 600 mg of dry extract of **Garcinia** Cambogia Fructuse, about 60 to 200 mg of dry extract of Fucus Vesicolosus, and about 100 to 280 mg of. . . composition including about 140 to 550 mg of Phaseolus Vulgaris Fructus, about 50 to 250 mg of dry extract of **Garcinia** Cambogia Fructus, about 75 to 175 mg of dry extract of Ananas Sativus Stipites, about 50 to 130 mg of. . .

L48 ANSWER 23 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:611 HCAPLUS
DN 128:127458
TI Effects of liquid **Garcinia extract** and soluble **Garcinia** powder on body weight change - a possible material for suppressing fat accumulation
AU Sawada, Harumichi; Tomi, Hironori; Tamura, Koichi; Anno, Takahiko
CS Food Res. Lab., Nippon Shinyaku Co., Ltd., Kyoto, 601, Japan
SO Nihon Yukagakkaishi (1997), 46(12), 1467-1474
CODEN: NIYUFC; ISSN: 1341-8327
PB Nihon Yukagaku Gakkai
DT Journal
LA Japanese
AB **Garcinia** is a spice which has been found effective for reducing body wt. There are many products contg. **garcinia ext.** as calcium type powder, with the active principle (-)-**hydroxycitric** acid (HCA) presumably present as calcium salt. The calcium type powder is stable but not ideal for food products due to its insoly. in water. A sol. **garcinia ext.** should thus be produced having the lactone form of HCA. This form does not inhibit ATP-citrate lyase in vitro, which is a key enzyme in lipid synthesis. A sol. **garcinia ext.** contg. much HCA in the lactone form would be of little use for reducing body wt. Because the lactone form of HCA was found to be possibly active in vivo, the authors prepd. sol. **garcinia** powder and liq. **garcinia ext.** contg. much lactone form of HCA, and assessment of usefulness was made by examg. effects on wt. change in rats and humans by comparison with calcium type **garcinia** powder. Sol. **garcinia** powder was found more effective for wt. redn. than the calcium type **garcinia** powder in rats when administered in feed. Sol. **garcinia** powder and liq. **garcinia ext.** should be effective to reduce human body wt. by acting to decrease fat accumulation.
ST reducing diet **Garcinia ext** powder; **hydroxycitrate Garcinia ext** reducing diet; lipid metab **Garcinia ext**

IT Adipose tissue
Garcinia
Lipid metabolism
(liq. **Garcinia ext.** and sol. **Garcinia** powder as possible materials for suppressing fat accumulation)

IT Diet
(reducing; liq. **Garcinia ext.** and sol. **Garcinia** powder as possible materials for suppressing fat accumulation)

IT **27750-10-3**, (-)-**Hydroxycitric** acid
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); USES (Uses)
(liq. **Garcinia ext.** and sol. **Garcinia** powder as possible materials for suppressing fat accumulation)

IT 9027-95-6, ATP-citrate lyase
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BIOL (Biological study); PROC (Process)
(liq. **Garcinia ext.** and sol. **Garcinia** powder as possible materials for suppressing fat accumulation)

IT **27750-10-3**, (-)-**Hydroxycitric** acid
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); THU (Therapeutic use); BIOL (Biological study); OCCU (Occurrence); USES (Uses)
(liq. **Garcinia ext.** and sol. **Garcinia** powder as possible materials for suppressing fat accumulation)

L48 ANSWER 24 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1997:41983 HCAPLUS
DN 126:65382
TI A new process for the production of potassium **hydroxy citric** acid, and compositions containing the potassium **hydroxy citric** acid
IN **Majeed, Muhammed; Badmaev, Vladimir; Rajendran, R.**
PA **Sabinsa Corporation, USA**; Majeed, Muhammed; Badmaev, Vladimir; Rajendran, R.
SO PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9636585	A1	19961121	WO 96-US6554	19960515
	W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI				
	RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN				
	AU 9657360	A1	19961129	AU 96-57360	19960515
	US 5783603	A	19980721	US 97-829143	19970331
PRAI	US 95-440968		19950515		
	WO 96-US6554		19960515		

AB The present invention provides new processes for the synthesis or isolation of **hydroxycitric** acid in the form of a potassium salt from Garcinia fruit. The present invention also provides compns. contg. the potassium **hydroxy citrate** for use a s appetite

suppressants.
ST potassium **hydroxycitrate** Garcinia extn
IT Appetite depressants
Garcinia
(prepn. of potassium **hydroxycitrate** from Garcinia fruit)
IT Aliphatic alcohols
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(prepn. of potassium **hydroxycitrate** from Garcinia fruit)
IT **185196-38-7P**
RL: BMF (Bioindustrial manufacture); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(prepn. of potassium **hydroxycitrate** from Garcinia fruit)
IT **27750-10-3**, (-)-**Hydroxycitric** acid
RL: BOC (Biological occurrence); RCT (Reactant); BIOL (Biological study); OCCU (Occurrence)
(prepn. of potassium **hydroxycitrate** from Garcinia fruit)
IT **185196-38-7P**
RL: BMF (Bioindustrial manufacture); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(prepn. of potassium **hydroxycitrate** from Garcinia fruit)
IT **27750-10-3**, (-)-**Hydroxycitric** acid
RL: BOC (Biological occurrence); RCT (Reactant); BIOL (Biological study); OCCU (Occurrence)
(prepn. of potassium **hydroxycitrate** from Garcinia fruit)

L48 ANSWER 25 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1996:328556 HCAPLUS
DN 125:9152
TI **Hydroxycitric** acid concentrate and method of making
IN Moffett, Scott Alexander; Bhandari, Ashok Kumar; Ravindranath, Bhagavathula
PA Renaissance Herbs, Inc., USA; Vittal Mallya Scientific Research Foundation
SO PCT Int. Appl., 20 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9605741	A1	19960229	WO 95-US10707	19950822
	W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT				
	RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	US 5536516	A	19960716	US 94-295281	19940824
	CA 2198376	AA	19960229	CA 95-2198376	19950822
	AU 9534129	A1	19960314	AU 95-34129	19950822
	EP 782399	A1	19970709	EP 95-930918	19950822
	R: DE, FR, GB, IT				
	CN 1162910	A	19971022	CN 95-195577	19950822
	BR 9508766	A	19971111	BR 95-8766	19950822
	JP 10504826	T2	19980512	JP 95-508284	19950822
	US 5656314	A	19970812	US 96-633921	19960417
PRAI	US 94-295281	19940824			

WO 95-US10707 19950822
AB A **hydroxycitric** acid conc. prepd. from **Garcinia** rind including 23 to 54% by wt. free **hydroxycitric** acid, 6 to 20% by wt. lactone of **hydroxycitric** acid, 0.001 to 8% by wt. citric acid, and 32 to 70% by wt. water has been claimed, wherein the free **hydroxycitric** acid, the lactone of **hydroxycitric** acid and the citric acid constitute 94 to 99% by wt. of total solutes dissolved in the water. Also disclosed is a method of prepg. such a conc. from **Garcinia** rind, as well as food products contg. **hydroxycitric** acid.
TI **Hydroxycitric** acid concentrate and method of making
CC **17-6** (Food and Feed Chemistry)
AB A **hydroxycitric** acid conc. prepd. from **Garcinia** rind including 23 to 54% by wt. free **hydroxycitric** acid, 6 to 20% by wt. lactone of **hydroxycitric** acid, 0.001 to 8% by wt. citric acid, and 32 to 70% by wt. water has been claimed, wherein the free **hydroxycitric** acid, the lactone of **hydroxycitric** acid and the citric acid constitute 94 to 99% by wt. of total solutes dissolved in the water. Also disclosed is a method of prepg. such a conc. from **Garcinia** rind, as well as food products contg. **hydroxycitric** acid.
ST **hydroxycitrate** conc **Garcinia** beverage snack
IT Beverages
Dietary fiber
(concn. of **hydroxycitric** acid from **Garcinia** rind)
IT **Garcinia**
(rind; concn. of **hydroxycitric** acid from **Garcinia** rind)
IT Food
(snack, bar; concn. of **hydroxycitric** acid from **Garcinia** rind)
IT 50-81-7, Vitamin C, biological studies 77-92-9, Citric acid, biological studies 27750-13-6, **Garcinia** lactone
RL: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(concn. of **hydroxycitric** acid from **Garcinia** rind)
IT 1310-58-3, Potassium hydroxide, biological studies 1310-73-2, Sodium hydroxide, biological studies
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(concn. of **hydroxycitric** acid from **Garcinia** rind)
IT **27750-10-3P, Hydroxycitric** acid
RL: BAC (Biological activity or effector, except adverse); FFD (Food or feed use); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. of **hydroxycitric** acid conc.)
IT **27750-10-3P, Hydroxycitric** acid
RL: BAC (Biological activity or effector, except adverse); FFD (Food or feed use); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. of **hydroxycitric** acid conc.)

L48 ANSWER 26 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1996:631993 HCAPLUS
DN 125:256778
TI Antiobesity compositions containing proteolytic enzymes and plant **extracts**
IN Courtin, Olivier
PA Clarins, Fr.
SO Fr. Demande, 10 pp.

CODEN: FRXXBL
DT Patent
LA French
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI FR 2729856	A1	19960802	FR 95-1029	19950130
FR 2729856	B1	19970411		

AB The title compns. contg. proteolytic enzymes, e.g. keratoline, and plant **exts**. are disclosed. The compns. may also have a lipogenesis inhibitor, e.g. **Garcinia** cambogia seed shell **ext**. which is rich in **hydroxycitrates** (no data).

ST antiobesity compn proteolytic enzyme plant **ext; Garcinia** lipogenesis inhibitor antiobesity compn

IT Saccharomycopsis lipolytica
(antiobesity compns. contg. proteolytic enzymes and plant **exts**.)

IT Antiobesity agents
Coenzymes
Enzymes
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(antiobesity compns. contg. proteolytic enzymes and plant **exts**.)

IT Actinidia chinensis
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(**exts**.; antiobesity compns. contg. proteolytic enzymes and plant **exts**.)

IT Lipids, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(inhibitors; antiobesity compns. contg. proteolytic enzymes and plant **exts**.)

IT Proteins, biological studies
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(keratoline, antiobesity compns. contg. proteolytic enzymes and plant **exts**.)

IT Alchemilla vulgaris
Hieracium pilosella
(leaves **exts**.; antiobesity compns. contg. proteolytic enzymes and plant **exts**.)

IT **Garcinia** cambogia
(seed shell **exts**.; antiobesity compns. contg. proteolytic enzymes and plant **exts**.)

IT Adipose tissue
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(adipocyte, antiobesity compns. contg. proteolytic enzymes and plant **exts**.)

IT Gelation
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(agents, antiobesity compns. contg. proteolytic enzymes and plant **exts**.)

IT 58-08-2, Caffein, biological studies 89-78-1, Menthol 6805-41-0, Escin 9001-62-1, Lipase 9001-92-7, Protease 9003-01-4, Polyacrylic acid 25087-26-7, Polymethacrylic acid
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES

(Uses)
(antiobesity compns. contg. proteolytic enzymes and plant **exts**.)
IT 77-92-9D, hydroxy derivs.
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(plants rich in; antiobesity compns. contg. proteolytic enzymes and plant **exts**.)

L48 ANSWER 27 OF 52 USPATFULL
AN 96:62908 USPATFULL
TI **Hydroxycitric** acid concentrate and food products prepared therefrom
IN Moffett, Scott A., Beverly Hills, CA, United States
Bhandari, Ashok K., Bangalore, India
Ravindranath, Bhagavathula, Bangalore, India
PA Renaissance Herbs, Inc., Beverly Hills, CA, United States (U.S. corporation)
Vittal Mallya Scientific Research Foundation, Bangalore, India (non-U.S. corporation)
PI US 5536516 19960716
AI US 94-295281 19940824 (8)
DT Utility
EXNAM Primary Examiner: Pratt, Helen
LREP Fish & Richardson
CLMN Number of Claims: 10
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 447
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A process of enriching hyroxycitric acid (HCA) from **Garcinia** rind in which a salt-free water extract of **Garcinia** rind is loaded onto an anion exchange column, eluted with a metal hydroxide for release of HCA. The water-extract is then treated with a cation exchange column to make free HCA as a free acid. The water extract is loaded at a capacity of 100 to 125% of the anion exchange column and at a capacity of 50 to 90% of the cation exchange column. The HCA can be added to food products such as beverages and snack bars.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM **Hydroxycitric** acid, both free acid and lactone forms, is present in the fruit rind of **Garcinia** species (e.g., **Garcinia** cambogia, **Garcinia** atroviridis, and **Garcinia** indica), which are commercially available in India.
SUMM As an inhibitor of the synthesis of fat and cholesterol, **hydroxycitric** acid has been shown to significantly reduce the body weight and lower lipid accumulation in rats. See, e.g., Sergio, W.,. . . 27:39 (1988); and Sullivan, A. C. et al., Lipids 9:121 (1973); and Sullivan, A. C. et al., Lipids 9:129 (1973). **Hydroxycitric** acid is also the only known anorectic agent found as a natural constituent of edible foods consumed by humans.
SUMM Methods for the extraction and purification of **hydroxycitric** acid from **Garcinia** rind can be found in Lewis, Y. S., Methods in Enzymology 13:613 (1967); and Indian Patent No. 160753.
SUMM One aspect of this invention relates to a **hydroxycitric** acid concentrate prepared from the fruit rind of the **Garcinia** genus (e.g., **Garcinia** cambogia, **Garcinia** atroviridis, and **Garcinia** indica). The concentrate comprises 23 to 54% (preferably, 32 to 48%; and particularly preferably, 36-45%) by weight

free **hydroxycitric** acid, 6 to 20% (preferably, 10 to 18%; and particularly preferably, 13 to 16%) by weight lactone of **hydroxycitric** acid, 0.001 to 8% (preferably, 0.001 to 6%; and particularly preferably, 0.001 to 3%) by weight citric acid, and 32 to 70% (preferably, 35 to 55%; and particularly preferably, 38 to 50%) by weight water, wherein the free **hydroxycitric** acid, the lactone of **hydroxycitric** acid and the citric acid constitute 94 to 99% (preferably, 96 to 99%; and particularly preferably, 98 to 99%) by. . .

SUMM Another aspect of this invention relates to a process of enriching **hydroxycitric** acid from **Garcinia** rind. The process comprises (1) obtaining a salt-free water extract of the **Garcinia** rind, (2) loading the extract on to an anion exchange column for adsorption of the **hydroxycitric** acid onto the anion exchange column, (3) eluting the **hydroxycitric** acid from the anion exchange column with a Group IA metal hydroxide (i.e., LiOH, NaOH, KOH, RbOH, CsOH or FrOH) for release of the **hydroxycitric** acid as a metal salt in a first solution, and (4) loading the first solution on to a cation exchange column for collection of the **hydroxycitric** acid as a free acid in a second solution.

SUMM The salt-free water extract used in the above process can be prepared by first extracting salted **Garcinia** rind and subsequently removing the salt with a water miscible organic solvent (e.g., acetone or ethyl alcohol). As to the. . .

SUMM . . . such as a beverage or a snack bar, which comprises 0.17 to 23% (preferably, 0.35 to 12%) by weight free **hydroxycitric** acid, 0.08 to 7% (preferably, 0.15 to 4%) by weight lactone of **hydroxycitric** acid, and at least 0.0002% (up to a proper content, e.g., 2% by weight) by weight citric acid. Preferably, the **hydroxycitric** acid and its lactone are from **Garcinia** rind. In an embodiment, the food product further comprises 0.04 to 0.4% (preferably, 0.04 to 0.08%) by weight vitamin C. . . .

SUMM The contents of free **hydroxycitric** acid, lactone of **hydroxycitric** acid, citric acid, and non-acid solutes can be determined by the methods described in Example 4 below or equivalents thereof.

SUMM A preferred process of this invention for enriching **hydroxycitric** acid from **Garcinia** rind includes preparing a salt-free water extract of **Garcinia** rind; loading the extract on to an anion exchange resin column for adsorption of **hydroxycitrate** ion on the anion resin and removal of nonionizing and nonacidic impurities in the extract, such as sugar, pectins, gum and color (which pass out unadsorbed); washing the anion column with water to ensure purity of **hydroxycitrate** ion; adding a sodium hydroxide solution to the anion exchange resin column for release of the **hydroxycitrate** ion in the form of sodium **hydroxycitrate** salt in a solution; converting the solution of sodium **hydroxycitrate** salt to free **hydroxycitric** acid by passing the solution through a cation exchange resin column; decoloring the **hydroxycitric** acid solution with activated charcoal; and, finally, concentrating the **hydroxycitric** acid solution to a predetermined concentration.

SUMM The salt-free water extract can be prepared from salt-free **Garcinia** rind by cross-current or counter-current method. It can also be prepared from salted **Garcinia** rind by extracting the rind with water preferably in multiple steps (by cross-current or counter-current method), treating the extract with. . . pectin, salt and other insoluble substances, and removing acetone by evaporation. Alternatively, one can treat the water extract of salted

Garcinia obtained from cross-current or counter-current method with calcium hydroxide solution to precipitate the insoluble salt of calcium **hydroxycitrate**, dilute the precipitate with cold water, filter it to eliminate the salt and other impurities, treat the precipitate with sulphuric acid to convert the calcium **hydroxycitrate** to calcium sulphate and **hydroxycitric** acid, and finally filter out the calcium sulphate precipitate. The salt-free water extract can optionally be prepared by passing the water extract of salted **Garcinia** rind obtained from cross-current or counter-current method through an anion exchange column for adsorption of the chloride ion on the. . .

SUMM (Note that **hydroxycitric** acid has a molecular weight of 208 daltons and has 3 eq acid groups.)

SUMM . . . cation exchange column is usually further treated by charcoal and concentrated by vacuum evaporation to about 55% by weight free **hydroxycitric** acid. A typical **hydroxycitric** acid concentrate obtained by the process of this invention is an aqueous solution of **hydroxycitric** acid containing 55 to 56% by weight total acids, of which 98 to 99% is total **hydroxycitric** acid (whether in the free acid or lactone form) and 1 to 2% is mostly citric acid. The concentrate also. . .

DETD Water extraction of salted **Garcinia** rind by the procedure commonly referred to as counter current extraction was carried out in 3 vessels marked vessel 1 to vessel 3. For the first cycle of operation, **garcinia** rind of 2 to 5 mm size was added to each vessel. In each vessel, 1.25 liters of 95.degree. C.. . .

DETD . . . final product. After four cycles, all extracts reached steady compositions. On the fifth cycle, for an input of 750 g **garcinia** rind, the product obtained was 850 ml of liquid.

DETD . . . and third extractions and finally discarded. More specifically, the extraction flask was charged with 0.5 liters of aqueous extract of **Garcinia** rind of approximately 60% soluble solids containing 149 g of total acids. It was extracted by using one liter of. . . pure acetone and the first extract was separated from the lower aqueous residue layer containing pectins, gums and some unextracted **hydroxycitric** acid. The same lower layer is subjected to second extraction using 750 ml of acetone water mixture containing 16.7% water.. . .

DETD . . . cation exchange column, respectively. The anion column, which had a capacity of 458 g, was charged with 507 g of **hydroxycitric** acid, giving a loading capacity of 111%. On the other hand, the anion column, which had a capacity of 762.6 g, was charged with sodium salt made from 493 g of **hydroxycitric** acid, giving a loading capacity of 65%.

DETD More specifically, 1.6 liters of acetone refined **Garcinia** extract was diluted to 6.4 liters (containing 507 g) of acid was passed through the anion exchange column. The anion. . . anion exchange column. The alkali converted the acid held on the anion exchange column into a water soluble salt, sodium **hydroxycitrate**, which was liberated. The anion exchange column was subsequently washed with 5 liters of water to release any salt remaining. . .

DETD The sodium **hydroxycitrate** solution was then passed through the cation exchange column where the salt was converted to free **hydroxycitric** acid. The material coming out of the cation exchange column was the final product, 11 liters containing 479 g of. . .

DETD **Garcinia** rind was obtained in the salt-free state from the forest area of Sirsi District, South Karnataka. The rind had 14% moisture and 19.2% **hydroxycitric** acid. Extraction was carried

out by three-stage batch process. More specifically, 1 kg of rind was taken in a stainless-steel. . .

DETD 1,500 ml of the salt free extract containing 65 g of **hydroxycitric** acid was passed slowly through 500 ml anion exchange resin column. The impurities came off as breakthrough. The resin was. . . with the breakthrough. The amount of acids present in the breakthrough was 6.53 g. In other words, 58.47 g of **hydroxycitric** acid was held on to 500 ml of anion exchange column. The anion resin was washed with 10 column volumes. . .

DETD 70 g of sodium hydroxide in 1,500 ml of water was then passed through the anion resin. The salt, sodium **hydroxycitrate**, was formed, releasing the **hydroxycitrate** ion from the resin. The resin was washed with 2-5 column volumes of water. The effluent from the anion exchange. . . cation exchange resin column. Here, Na.sup.+ ion was held up by releasing H.sup.+ ion from the resin to give free **hydroxycitric** acid, which was collected in a volume of 2,000 ml. 56.55 g of **hydroxycitric** acid was recovered, giving a recovery percentage of 96.6%.

DETD 200 ml of **Garcinia** water extract, containing 61.4 g of organic acids, was precipitated with 33.4 g of CaOH to get calcium **hydroxycitrate**. The precipitate was then diluted with about 300 ml of cold water and filtered under vacuum. The wet precipitate obtained, on drying at 60.degree. C. for 16 hours, gave 83.5 g of dry calcium **hydroxycitrate**. The calcium **hydroxycitrate** was converted to **hydroxycitric** acid and calcium sulphate by adding 369 ml of 2.5N sulphuric acid. Calcium sulphate precipitate was removed by centrifugation at. . .

DETD 53 g of **hydroxycitric** acid was present in 355 ml of supernatant and the recovery was 87.6 %.

DETD 150 ml of solution containing 22.4 g of **hydroxycitric** acid was passed through 200 ml of anion exchange resin to saturate the column. The column was washed with demineralized. . . water and 240 ml of 5% sodium hydroxide solution was passed through the column to get 800 ml of sodium **hydroxycitrate** solution. 800 ml of the above solution was passed through 400 ml of cation exchange resin. 1240 ml of solution containing 18.84 g of **hydroxycitric** acid was obtained. The overall recovery of 18.84 g of **hydroxycitric** acid from the cation exchange column indicated a yield of 90.5%.

DETD The above solution after charcoal treatment and concentration under vacuum at 72.degree. C. to 55% by weight of **hydroxycitric** acid gave a **hydroxycitric** acid concentrate which was stable for months.

DETD The composition of an exemplary **hydroxycitric** acid concentrate prepared from **Garcinia** rind by the process of this invention is shown below:

DETD In the above table, "HCA" is the abbreviation of **hydroxycitric** acid and "%" refers to "% by weight." FA, LA, and CA were determined by the following HPLC system:

DETD Preparation of fiber snack bars and natural beverages from a **hydroxycitric** acid concentrate of this invention involves the steps of diluting the concentrate in water, adding supplements, blending, heating, and periodic. . .

DETD . . . for the development of this product is in a industrial kitchen with the use of large cooking pots. The diluted **hydroxycitric** acid solution is blended with water, covered and heated, bringing it to a boil for about 15 minutes. The bubbles. . .

DETD For example, the **hydroxycitric** acid concentrate of this invention can be formulated with ginger extract or licorice extract in a liquid concentrate form. Similarly, it can be used to make lozenges with

hydroxycitric acid, herbal extracts, or a variety of nutrients and flavors.

CLM What is claimed is:

1. A process of enriching **hydroxycitric** acid from **Garcinia** rind comprising: (1) obtaining a salt-free water extract of said **Garcinia** rind, (2) loading said extract onto an anion exchange column for adsorption of said **hydroxycitric** acid onto said anion exchange column, (3) eluting said **hydroxycitric** acid from said anion exchange column with a Group IA metal hydroxide for release of said **hydroxycitric** acid as a metal salt in a first solution, and (4) loading said first solution onto a cation exchange column for collection of said **hydroxycitric** acid as a free acid in a second solution; wherein said water extract is loaded at a capacity of 100. . .

6. The process of claim 1, wherein said salt-free water extract is prepared by first extracting salted **Garcinia** rind and subsequently removing salt with a water miscible organic solvent.

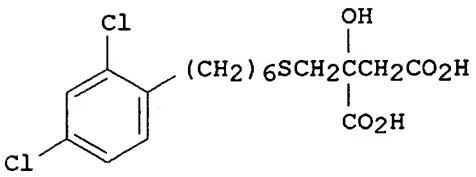
. . . The process of claim 1 after step (4) further comprising reducing the volume of said second solution to form a **hydroxycitric** acid concentrate and adding said concentrate to a food product.

IT **Garcinia**
(rind; concn. of hydroxycitric acid from Garcinia rind)

IT **27750-10-3P**, Hydroxycitric acid
(prepn. of hydroxycitric acid conc.)

IT **27750-10-3P**, Hydroxycitric acid
(prepn. of hydroxycitric acid conc.)

L48 ANSWER 28 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1996:483470 HCAPLUS
DN 125:195106
TI ATP-Citrate Lyase as a Target for Hypolipidemic Intervention. Design and Synthesis of 2-Substituted Butane-1,4-dioic Acids as Novel, Potent Inhibitors of the Enzyme
AU Gribble, Andrew D.; Dolle, Roland E.; Shaw, Antony; McNair, David; Novelli, Riccardo; Novelli, Christine E.; Slingsby, Brian P.; Shah, Virendra P.; Tew, David; et al.
CS Departments of Medicinal Chemistry, SmithKline Beecham Pharmaceuticals Ltd, The Frythe/Welwyn/Hertfordshire, AL6 9AR, UK
SO J. Med. Chem. (1996), 39(18), 3569-3584
CODEN: JMCMAR; ISSN: 0022-2623
DT Journal
LA English
GI



I

AB ATP-citrate lyase is the primary enzyme responsible for the synthesis of cytosolic acetyl-CoA in many tissues. Inhibitors of the enzyme represent

a potentially novel class of hypolipidemic agent, which are anticipated to have combined hypocholesterolemic and hypotriglyceridemic properties. A series of 2-substituted butane-1,4-dioic acids have been designed and synthesized as inhibitors of the enzyme. The best compds. have reversible Ki's in the 1-3 .mu..MU. range against the isolated rat enzyme. As representative of this compd. class, I has been shown to exert its inhibitory action through a mainly competitive mechanism with respect to citrate and a noncompetitive one with respect to CoA. None of the inhibitors were able to inhibit cholesterol and/or fatty acid synthesis in HepG2 cells. This has been attributed to the adverse physicochem. properties of the mols. leading to a lack of cell penetration. Despite this, a lead structural class of compd. has been identified with the potential for modification into potent, cell-penetrant, and efficacious inhibitors of ATP-citrate lyase.

IT **27750-10-3P** 180622-85-9P 180622-86-0P 180622-87-1P
180622-88-2P 180622-89-3P 180622-90-6P 180622-91-7P 180622-92-8P
180622-93-9P 180622-94-0P 180622-95-1P 180622-96-2P 180622-97-3P
180622-98-4P 180622-99-5P 180623-00-1P 180623-01-2P 180623-02-3P
180623-03-4P 180623-04-5P 180623-05-6P 180623-06-7P 180623-07-8P
180623-08-9P 180623-09-0P 180623-10-3P 180623-11-4P 180623-12-5P
180623-13-6P 180623-14-7P 180623-15-8P 180623-16-9P 180623-17-0P
180623-18-1P 180623-19-2P 180623-20-5P 180623-21-6P 180623-22-7P
180623-23-8P 180623-24-9P 180623-25-0P 180623-26-1P 180623-27-2P
180623-28-3P 180623-29-4P 180623-30-7P 180623-31-8P 180623-32-9P
180623-33-0P 180623-34-1P 180623-35-2P 180623-36-3P 180623-37-4P
180623-38-5P 180623-39-6P 180623-40-9P 180623-41-0P 180623-42-1P
180623-43-2P 180623-44-3P
RL: BAC (Biological activity or effector, except adverse); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(prepn. of butane-1,4-dioic acids as inhibitors of the enzyme ATP-citrate lyase)

IT 79-37-8, Oxalyl chloride 105-45-3, Methyl acetoacetate 111-24-0, 1,5-Dibromopentane 120-83-2, 2,4-Dichlorophenol 554-00-7, 2,4-Dichloroaniline 590-97-6, Bromomethyl acetate 603-35-0, Triphenylphosphine, reactions 617-52-7, Dimethyl itaconate 874-42-0, 2,4-Dichlorobenzaldehyde 1122-41-4, 2,4-Dichlorobenzenethiol 2969-81-5, Ethyl 4-bromobutyrate 4509-90-4 13325-10-5, 4-Amino-1-butanol 16271-33-3, 2,4-Dichlorobenzenesulfonyl chloride 17814-85-6, 4-Carboxybutyltriphenylphosphonium bromide 27750-13-6, **Garcinia** lactone 27976-27-8, 6-Phenylhexyl bromide 32807-28-6, Methyl 4-chloroacetoacetate 37734-05-7, Methyl 3-oxo-4-pentenoate 50816-19-8, 8-Bromooctanol 99725-07-2, 2,4-Dichloro-6-phenylbenzaldehyde 180622-61-1 180622-64-4
RL: RCT (Reactant)
(prepn. of butane-1,4-dioic acids as inhibitors of the enzyme ATP-citrate lyase)

IT **27750-10-3P**
RL: BAC (Biological activity or effector, except adverse); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(prepn. of butane-1,4-dioic acids as inhibitors of the enzyme ATP-citrate lyase)

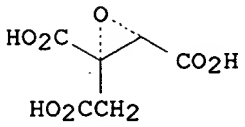
L48 ANSWER 29 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1995:320149 HCAPLUS
DN 123:198258
TI Synthesis of Novel Thiol-Containing Citric Acid Analogs. Kinetic Evaluation of These and Other Potential Active-Site-Directed and Mechanism-Based Inhibitors of ATP Citrate Lyase
AU Dolle, Roland E.; Gribble, Andy; Wilkes, Tracey; Kruse, Lawrence I.;

Eggleston, Drake; Saxty, Barbara A.; Wells, Timothy N. C.; Groot, Pieter H. E.

CS Departments of Medicinal Chemistry and Cellular Pharmacology, SmithKline Beecham Pharmaceuticals Ltd., Welwyn/Welwyn, AL6 9AR, UK

SO J. Med. Chem. (1995), 38(3), 537-43
CODEN: JMCMAR; ISSN: 0022-2623
DT Journal
LA English

GI



I

AB ATP citrate lyase is an enzyme involved in mammalian lipogenesis and cholesterogenesis. Inhibitors of the enzyme represent a potentially novel class of hypolipidemic agents. Citric acid analogs, e.g. I, (.+-.)-HO2CCH2C(OH)C(CO2H)CHClCO2H, bearing electrophilic and latent electrophilic substituents were synthesized and evaluated as irreversible inhibitors of ATP citrate lyase. The design of these agents was based on the classical enzymic mechanism where an active-site nucleophile (thiol) was believed to be critically involved in catalysis. Reversible inhibition (Ki's ranging from ca. 20 to 500 .mu.M) was obsd. for some of these compds. Some of the compds., e.g. I, had no appreciable affinity for the enzyme (Ki > 1 mM). Time-dependent inactivation of the enzyme was not detected following long incubation times (>1 h, 37 .degree.C) at 2 mM inhibitor concns.

CC 23-16 (Aliphatic Compounds)
Section cross-reference(s): **1**, 27

IT 97-65-4, biological studies 585-84-2 4023-65-8 **27750-10-3** 64395-22-8 76432-77-4 85717-22-2 168037-32-9
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(synthesis of citric acid analogs as inhibitors of ATP citrate lyase)

IT 27750-13-6, **Garcinia** lactone 42726-73-8, tert-Butyl methyl malonate 55048-60-7
RL: RCT (Reactant)
(synthesis of citric acid analogs as inhibitors of ATP citrate lyase)

IT **27750-10-3**
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(synthesis of citric acid analogs as inhibitors of ATP citrate lyase)

L48 ANSWER 30 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1996:6185 HCAPLUS
DN 124:51316
TI Inhibition of citrate lyase may aid aerobic endurance
AU McCarty, M. F.
CS San Diego, CA, 92109, USA
SO Med. Hypotheses (1995), Volume Date 1995, 45(3), 247-54
CODEN: MEHYDY; ISSN: 0306-9877
DT Journal; General Review
LA English

AB A review with 77 refs. Owing to a substantial increase in glucose uptake

by working muscle, glucose homeostasis during sustained aerobic exercise requires a severalfold increase in hepatic glucose output. As exercise continues and liver glycogen declines, an increasing proportion of this elevated glucose output must be provided by gluconeogenesis. Increased gluconeogenic efficiency in trained individuals is a key adaptation promoting increased endurance, since failure of hepatic glucose output to keep pace with muscle uptake rapidly leads to hypoglycemia and exhaustion. Pre-administration of (-)-**hydroxycitrate**, a potent inhibitor of citrate lyase found in fruits of the genus **Garcinia**, may aid endurance during postabsorptive aerobic exercise by promoting gluconeogenesis. Carnitine and bioactive chromium may potentiate this benefit. The utility of this technique may be greatest in exercise regimens designed to promote wt. loss.

L48 ANSWER 31 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1996:43524 HCAPLUS
DN 124:97375
TI (-)-**Hydroxycitric** acid from **Garcinia** cambogia.
AU Singh, R.P.; Jayaprakasha, G.K.; Sakariah, K.K.
CS Manpower Development, Central Food Technological Research Institute, Mysore, 570 013, India
SO Biol. Mem. (1995), Volume Date 1995, 21(1), 27-33
CODEN: BMEMDK; ISSN: 0379-8097
DT Journal
LA English
AB Crystals of (-)-**hydroxycitric** acid were prepd. from water **ext.** of G. cambogia by pptn. as calcium or barium salt and desalting on cation exchange resin. Water was removed by distn. with immiscible solvent, followed by recrystn. of (-)-**hydroxycitric** acid lactone in ether. Purity of the prepn. was confirmed by spectroscopic and chem. studies.
ST **hydroxycitric** acid **Garcinia**
IT **Garcinia** cambogia
(**hydroxycitric** acid from)
IT **27750-10-3P**, (-)-**Hydroxycitric** acid
RL: PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**Garcinia** cambogia.)
IT **27750-10-3P**, (-)-**Hydroxycitric** acid
RL: PUR (Purification or recovery); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**Garcinia** cambogia.)

L48 ANSWER 32 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1988:203575 HCAPLUS
DN 108:203575
TI A process for the **extraction** of **garcinol**, **hydroxycitric** acid, and anthocyanins which are useful in the food industry as coloring additives from the plant kokum(**Garcinia** indica)
IN Krishnamurthy, Nanjundaiah; Ravindranath, Bhagavathula; Sampathu, Satyagalam Ranganatha
PA Council of Scientific and Industrial Research (India), India
SO Indian, 9 pp.
CODEN: INXXAP
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	IN 160753	A	19870801	IN 85-DE247	19850323

AB Dried powd. kokum fruit rind is treated with water to obtain a water **ext**. contg. **hydroxycitric** acid and anthocyanins, which are sepd. by fractional chromatog.; further treatment of the rind residue with an org. solvent is performed to **ext**. the **garcinol**. Dry 10-40 mesh kokum was **extd**. with 3 parts H2O contg. 250-1000 ppm SO2, the **ext**. vacuum concd. and then air-dried on sand and placed in a column from which **hydroxycitric** acid was eluted with acetone contg. 1-5% H2O. The anthocyanins were then eluted with H2O. The residue was cold-**extd**. with 4 parts EtOH, concd. to a 2-phase system, the upper phase contg. anthocyanins being added to the above anthocyanin **ext**. and the lower phase digested into hexane or petroleum ether at 60-80.degree.. On standing at 6.degree. for 48-72 h, **garcinol** is crystd. from this **ext**. The **garcinol** is chromatog. purified.

ST kokum **garcinol hydroxycitrate** anthocyanin **extn** ; **Garcinia garcinol hydroxycitrate** anthocyanin **extn**; dye food **Garcinia ext**

IT Food
(dyes and pigments for, kokum fruit rind **extn**. for)

IT Anthocyanins
RL: PROC (Process)
(**extn**. of, from kokum fruit rind)

IT Pigments, plant
(of kokum fruit rind, **extn**. of, for food use)

IT **Garcinia** indica
(pigments **extn**. from fruit rind of, for food use)

IT **27750-10-3, Hydroxycitric** acid 78824-30-3, **Garcinol**
RL: PROC (Process)
(**extn**. of, from kokum fruit rind)

IT **27750-10-3, Hydroxycitric** acid
RL: PROC (Process)
(**extn**. of, from kokum fruit rind)

L48 ANSWER 33 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1983:452977 HCAPLUS
DN 99:52977
TI Apparent stability constants of magnesium and calcium complexes of tricarboxylates
AU Gabriel, Jerome L.; Aogaichi, Tadashi; Dearolf, Charles R.; Plaut, Gerhard W. E.
CS Sch. Med., Temple Univ., Philadelphia, PA, 19140, USA
SO Anal. Lett. (1983), 16(A2), 113-27
CODEN: ANALBP; ISSN: 0003-2719
DT Journal
LA English

AB The trisodium salt of o-(1,8-dihydroxy-3,6-disulfo-2-naphthylazo)benzenearsonic acid was used as metallochromic indicator for the spectrophotometric detn. of apparent stability consts. of Mg and Ca complexes of tricarboxylates and ADP (pH 7.4-8.0). The tricarboxylate studied were citrate, O-Me citrate, DL-erythro-fluorocitrate, DL-threo-isocitrate, DL-threo-.alpha.-methylisocitrate, DL-erythro-.alpha.-methylisocitrate, DL-threo-homoisocitrate, tricarballylate, 3-hydroxyglutarate, **garciniate**, and hibiscusate.

IT 58-64-0DP, complexes with magnesium and calcium 77-92-9DP, complexes with magnesium and calcium 99-14-9DP, complexes with magnesium and calcium 520-10-5DP, complexes with magnesium and calcium 638-18-6DP, complexes with magnesium and calcium 18979-21-0DP, complexes with magnesium and calcium 24315-15-9DP, complexes with magnesium and calcium 56298-33-0DP, complexes with magnesium and calcium 56298-34-1DP, complexes with magnesium and calcium **56323-59-2DP**, complexes with magnesium and calcium **56323-60-5DP**, complexes with magnesium and calcium 71183-66-9DP, complexes with magnesium and calcium 86404-09-3DP, complexes with magnesium and calcium 86406-84-0DP, complexes with magnesium and calcium 86470-11-3DP, complexes with magnesium and calcium
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and stability const. of)

IT **56323-59-2DP**, complexes with magnesium and calcium
56323-60-5DP, complexes with magnesium and calcium
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and stability const. of)

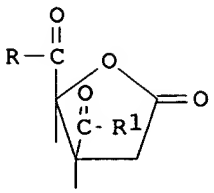
L48 ANSWER 34 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1982:488720 HCAPLUS
DN 97:88720
TI Chemical constituents of kokam fruit rind
AU Krishnamurthy, N.; Lewis, Y. S.; Ravindranath, B.
CS Cent. Food Technol. Res. Inst., Mysore, India
SO J. Food Sci. Technol. (1982), 19(3), 97-100
CODEN: JFSTAB; ISSN: 0022-1155
DT Journal
LA English
AB Chem. investigation of the kokam (**Garcinia** indica) fruit rind revealed the presence of (-)-**hydroxycitric** acid, cyanidin 3-glucoside, and cyanidin 3-sambubioside. Their isolation, identification, and detn. as well as the proximate compn. of kokam fruit rind are described.
ST kokam fruit citrate glycoside; **Garcinia** fruit compn
IT **Garcinia** indica
(compn. of fruit of)
IT 7084-24-4 **27750-10-3** 33012-73-6
RL: BIOL (Biological study)
(of kokam fruit rind)
IT **27750-10-3**
RL: BIOL (Biological study)
(of kokam fruit rind)

L48 ANSWER 35 OF 52 HCAPLUS COPYRIGHT 1999 ACS DUPLICATE 2
AN 1977:517767 HCAPLUS
DN 87:117767
TI **Hydroxycitric** acid derivatives
IN Guthrie, Robert William; Kierstead, Richard Wightman
PA Hoffmann-La Roche, Inc., USA
SO U.S., 9 pp. Division of U.S. 3,919,254.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 9

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4028397	A	19770607	US 75-600995	19750801
	US 3767678	A	19731023	US 71-204288	19711202

	US 3919254	A	19751111	US 73-376478	19730705
	AT 7501597	A	19750915	AT 75-1597	19750228
	AT 330140	B	19760610		
PRAI	US 71-204288	19711202			
	US 73-376478	19730705			
	AT 72-10240	19721201			

GI



I, R=R2, R1=R3

II, R=R3, R1=R2

AB The title amides and esters I (R2 = MeO, EtO, PhCH2O, R3 = NH2, EtNH, Et2N, 1-adamantylamino, Oh) and II (R2 = OH, MeO, EtO, R3 = EtNH, Et2H, 4-HO2CC6H4NH) were prepd. and showed an inhibiting effect in fatty acid synthesis. Thus, 28.0 g (+)-threo-**hydroxycitric** acid .gamma.-lactone was treated with Ac2O to give 26.1 g 2(S),3(S)-tetrahydro-3-acetoxy-5-oxo-2,3-furandicarboxylic anhydride. This anhydride (9.8 g) was treated with 16.8 g 1-adamantanamine in THF to give 17.7 g I (R2 = 1-adamantylamino, R3 = OH). This amide (1.0 g) and (COCl)2 gave 0.575 g of Et 3(S),4(S)-4-[N-(1-adamantylcarbamoyl)]-3-ethoxycarbonyl-3,4-dihydroxybutanoate (III).

ST **hydroxycitrate** adamantanamide obesity inhibition; lactone **hydroxycitric** acid obesity inhibition; fatty acid synthesis inhibition **hydroxycitrate**; citrate hydroxy amide ester

IT Obesity
(**Garcinia** acid derivs. for treatment of)

IT Lipids
RL: RCT (Reactant)
(inhibitors of, **Garcinia** acid derivs.)

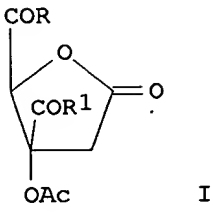
IT 108-24-7
RL: RCT (Reactant)
(anhydride formation with **Garcinia** acid in)

L48 ANSWER 36 OF 52 HCAPLUS COPYRIGHT 1999 ACS DUPLICATE 3
AN 1977:552513 HCAPLUS
DN 87:152513
TI **Hydroxycitric** acid derivatives
IN Guthrie, Robert William; Kierstead, Richard Wightman
PA Hoffmann-La Roche, Inc., USA
SO U.S., 9 pp. Division of U.S. 3,919,478.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 9

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4007208	A	19770208	US 75-601246	19750801
	US 3767678	A	19731023	US 71-204288	19711202
	US 3919254	A	19751111	US 73-376478	19730705

	AT 7501597	A	19750915	AT 75-1597	19750228
	AT 330140	B	19760610		
PRAI	US 71-204288	19711202			
	US 73-376478	19730705			
	AT 72-10240	19721201			

GI



I

AB The furandicarboxylic acid derivs. I (R = OMe, R1 = NH2; R = OEt, R1 = NH2, OEt, NHEt, NEt2, NHC6H4CO2H-4; R = NHEt, NEt2, OCH2Ph, 1-adamantylamino, R1 = OH; R = NEt2, R1 = OMe) were prepd. by converting (+)-**garcinia** acid to its acetylated anhydride deriv. and esterifying and aminating. I caused 16-67% inhibition of lipogenesis at 2.63 mmoles/kg orally in rats.

ST furandicarboxylate; lipogenesis inhibitor furandicarboxylate; **hydroxycitric** acid lactone; citric acid hydroxy lactone; **garcinia** anhydride alcoholysis

IT Lipids
RL: RCT (Reactant)
(formation of **hydroxycitric** acid derivs. as inhibitors for)

IT Anticholesteremics and Hypolipemics
(**hydroxycitric** acid derivs.)

IT Obesity
(**hydroxycitric** acid derivs. in treatment of)

L48 ANSWER 37 OF 52 USPATFULL
AN 77:6122 USPATFULL
TI **Hydroxycitric** acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US 4006166 19770201
AI US 75-601678 19750801 (5)
RLI Division of Ser. No. US 73-376478, filed on 5 Jul 1973, now patented, Pat. No. US 3919254 which is a division of Ser. No. US 71-204288, filed on 2 Dec 1971, now patented, Pat. No. US 3767678
DT Utility
EXNAM Primary Examiner: Jaisle, Cecilia
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 6
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 750
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Ester and amide derivatives of threo-**hydroxycitric** acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the treatment of obesity and in correcting conditions of lipid abnormalities.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM . . . sequence of reactions depicted in Reaction Scheme A. The starting material for this reaction sequence is racemic or optically active threo-**hydroxycitric** acid .gamma.-lactone (II). The (+)-antipode of formula II is a well known natural product, **Garcinia** acid, obtainable by isolation from the fruit of **Garcinia** cambogia using known procedures.
SUMM . . . novel compounds of the present invention may be conveniently prepared via the intermediate anhydride III. The anhydride is prepared from threo-**hydroxy citric** acid .gamma.-lactone II by treatment of the latter with an anhydrating agent. An anhydrating agent is defined as an agent. . .
DETD A. A mixture of (+)-threo-**hydroxycitric** acid .gamma. lactone [2(S), 3(S)-tetrahydro-3-hydroxy-5-oxo-furan-2,3-dicarboxylic acid, (+)-**Garcinia** acid] (28.0 g.) and acetic anhydride (150 ml.) was maintained at 95.degree. (steam bath) for 30 minutes, then the solvent. . .
DETD B. A solution of (+)-threo-**hydroxycitric** acid .gamma. lactone (20 g.) in acetic anhydride (80 ml.) and acetyl chloride (40 ml.) was heated at reflux under. . .
DETD On the last of feeding, at a specified time before initiation of the meal, the **hydroxycitric** acid derivative in ASV of the composition sodium chloride 0.9%, carboxy methyl cellulose 0.5%, benzyl alcohol 0.865 and tween 80. . .
DETD

Effect of oral administration of **hydroxycitric** acid derivatives (2.63 mmoles/kg) on in vivo rates of lipogenesis.sup.1

Formula I Derivative (2S,3S-configuration, unless otherwise indicated).sup.2		Lipogenesis
		nanomoles .sup.14 C-alanine/ Percent
Y	R.sub.1 Z. . .	

L48 ANSWER 38 OF 52 USPATFULL
AN 77:4944 USPATFULL
TI **Hydroxycitric** acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US 4005086 19770125
AI US 75-601065 19750801 (5)
RLI Division of Ser. No. US 73-376478, filed on 5 Jul 1973, now patented, Pat. No. US 3919254 which is a division of Ser. No. US 71-204288, filed on 2 Dec 1971, now patented, Pat. No. US 3767678
DT Utility
EXNAM Primary Examiner: Jiles, Henry R.; Assistant Examiner: Bond, Robert T.
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 1
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 741
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB Ester and amide derivatives of threo-**hydroxycitric** acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the treatment of obesity and in correcting conditions of lipid abnormalities.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

SUMM . . . sequence of reactions depicted in Reaction Scheme A. The starting material for this reaction sequence is racemic or optically active threo-**hydroxycitric** acid .gamma.-lactone (II). The (+)-antipode of formula II is a well known natural product, **Garcinia** acid, obtainable by isolation from the fruit of **Garcinia** cambogia using known procedures.

SUMM . . . novel compounds of the present invention may be conveniently prepared via the intermediate anhydride III. The anhydride is prepared from threo-**hydroxy citric** acid .gamma.-lactone II by treatment of the latter with an anhydrating agent. An anhydrating agent is defined as an agent. . .

DETD a mixture of (+)-threo-**hydroxycitric** acid .gamma. lactone [2(S),3(S)-tetrahydro-3-hydroxy-5-oxo-furan-2,3-dicarboxylic acid, (+)-**Garcinia** acid] (28.0 g.) and acetic anhydride (150 ml.) was maintained at 95.degree. (steam bath) for 30 minutes, then the solvent. . .

DETD a solution of (+)-threo-**hydroxycitric** acid .gamma. lactone (20 g.) in acetic anhydride (80 ml.) and acetyl chloride (40 ml.) was heated at reflux under. . .

DETD On the last of feeding, at a specified time before initiation of the meal, the **hydroxycitric** acid derivative in ASV of the composition sodium chloride 0.9%, carboxy methyl cellulose 0.5% benzyl alcohol 0.86% and tween 80. . .

DETD

Effect of oral administration of **hydroxycitric** acid derivatives (2.63 mmoles/kg) on in vivo rates of lipogenesis.sup.1

Formula I Derivative (2S, 3S-configuration, unless otherwise indicated).sup.2	Lipogenesis
	nanomoles .sup.14 C-alanine

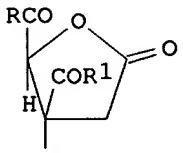
. . .

L48 ANSWER 39 OF 52 HCAPLUS COPYRIGHT 1999 ACS DUPLICATE 4
AN 1977:453525 HCAPLUS
DN 87:53525
TI **Hydroxycitric** acid derivatives
IN Guthrie, Robert W.; Kierstead, Richard W.
PA Hoffmann-La Roche, Inc., USA
SO U.S., 9 pp. Division of U.S. 3,919,254.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 9

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 3994927	A	19761130	US 75-601245	19750801
	US 3767678	A	19731023	US 71-204288	19711202
	US 3919254	A	19751111	US 73-376478	19730705

	AT 7501597	A	19750915	AT 75-1597	19750228
	AT 330140	B	19760610		
PRAI	US 71-204288	19711202			
	US 73-376478	19730705			
	AT 72-10240	19721201			

GI



I

AB **Garcinia** acid derivs. I (R, R1 = OH, OMe, OEt, NH2, NHEt, NEt2, etc., but R .noteq. R1) were prepd. and gave 16-67% inhibition of lipid formation in rats orally at 2.63 mmol/kg. Thus, (+)-**garcinia** acid treated with Ac2O, then with anhydr. MeOH, gave (2S, 3S)-I (R = OMe, R1 = OH), which was treated successively with (COCl)2 and NH3 to give (2S, 3S)-I (R = OMe, R1 = NH2), which gave 67% inhibition of fat formation in rats at 2.63 mmol/kg (oral).

ST **hydroxycitric** acid deriv obesity; **garcinia** acid ester amide; citric lactone hydroxy deriv; fat inhibition **garcinia** lactone

IT Fatty acids, biological studies
RL: FORM (Formation, nonpreparative)
(formation of, in vivo, **hydroxycitric** acid lactone deriv. as inhibitors as)

IT Lipids
RL: FORM (Formation, nonpreparative)
(formation of, inhibitors for, **hydroxycitric** acid lactone derivs. as)

IT Obesity
(**hydroxycitric** acid lactone derivs. in treatment of)

IT 108-24-7
RL: RCT (Reactant)
(reaction of, with **hydroxycitric** acid .gamma.-lactone)

L48 ANSWER 40 OF 52 USPATFULL
AN 76:63717 USPATFULL
TI **Hydroxycitric** acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US 3993668 19761123
AI US 75-600997 19750801 (5)
RLI Division of Ser. No. US 73-376478, filed on 5 Jul 1973, now patented, Pat. No. US 3919254 which is a division of Ser. No. US 71-204288, filed on 2 Dec 1971, now patented, Pat. No. US 3767678
DT Utility
EXNAM Primary Examiner: Jiles, Henry R.; Assistant Examiner: Jaisle, C.
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 4
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 738

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Ester and amide derivatives of three-**hydroxycitric** acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the treatment of obesity and in correcting conditions of lipid abnormalities.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM . . . of reactions depicted in Reaction Scheme A. The starting material for this reaction sequence is a racemic or optically active threo-**hydroxycitric** acid .gamma.-lactone (II). The (+)-antipode of formula II is a well known natural product, **Garcinia** acid, obtainable by isolation from the fruit of **Garcinia** cambogia using known procedures.
SUMM . . . novel compounds of the present invention may be conveniently prepared via the intermediate anhydride III. The anhydride is prepared from threo-**hydroxy citric** acid .gamma.-lactone II by treatment of the latter with an anhydrating agent. An anhydrating agent is defined as an agent. . .
DETD A. A mixture of (+)-threo-**hydroxycitric** acid .gamma. lactone [2(S), 3(S)-tetrahydro-3-hydroxy-5-oxo-furan-2,3-dicarboxylic acid, (+)-**Garcinia** acid] (28.0 g.) and acetic anhydride (150 ml.) was maintained at 95.degree. (steam bath) for 30 minutes, then the solvent. . .
DETD B. A solution of (+)-threo-**hydroxycitric** acid .gamma. lactone (20 g.) in acetic anhydride (80 ml.) and acetyl chloride (40 ml.) was heated at reflux under. . .
DETD On the last of feeding, at a specified time before initiation of the meal, the **hydroxycitric** acid derivative in ASV of the composition sodium chloride 0.9%, carboxy methyl cellulose 0.5%, benzyl alcohol 0.86% and tween 80. . .
DETD

Effect of oral administration of **hydroxycitric** acid derivatives (2.63 mmoles/kg) on in vivo rates of lipogenesis.sup.1

Formula I Derivative (2S,3S-configuration, unless otherwise indicated).sup.2 Y	R.sub.1	Lipogenesis nanomoles.sup.14 C-alanine/g.	Percent Inhi-
. . .			

L48 ANSWER 41 OF 52 USPATFULL
AN 76:63716 USPATFULL
TI **Hydroxycitric** acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US 3993667 19761123
AI US 75-600996 19750801 (5)
RLI Division of Ser. No. US 73-376478, filed on 5 Jul 1973, now patented, Pat. No. US 3919254 which is a division of Ser. No. US 71-204288, filed on 2 Dec 1971, now patented, Pat. No. US 3767678
DT Utility
EXNAM Primary Examiner: Jiles, Henry R.; Assistant Examiner: Jaisle, C.

LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 4
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 739
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Ester and amide derivatives of three-**hydroxycitric** acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the treatment of obesity and in correcting conditions of lipid abnormalities.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM . . . sequence of reactions depicted in Reaction Scheme A. The starting material for this reaction sequence is racemic or optically active threo-**hydroxycitric** acid .gamma.-lactone (II). The (+)-antipode of formula II is a well known natural product, **Garcinia** acid, obtainable by isolation from the fruit of **Garcinia** cambogia using known procedures.
SUMM . . . novel compounds of the present invention may be conveniently prepared via the intermediate anhydride III. The anhydride is prepared from threo-**hydroxy citric** acid .gamma.-lactone II by treatment of the latter with an anhydrating agent. An anhydrating agent is defined as an agent. . .
DETD A. A mixture of (+)-threo-**hydroxycitric** acid .gamma. lactone [2(S),3(S)-tetrahydro-3-hydroxy-5-oxo-furan-2,3-dicarboxylic acid, (+)-**Garcinia** acid] (28.0 g.) and acetic anhydride (150 ml.) was maintained at 95.degree. (steam bath) for 30 minutes, then the solvent. . .
DETD B. A solution of (+)-threo-**hydroxycitric** acid .gamma. lactone (20 g.) in acetic anhydride (80 ml.) and acetyl chloride (40 ml.) was heated at reflux under. . .
DETD On the last of feeding, at a specified time before initiation of the meal, the **hydroxycitric** acid derivative in ASV of the composition sodium chloride 0.9%, carboxy methyl cellulose 0.5%, benzyl alcohol 0.86% and tween 80. . .
DETD

Effect of oral administration of **hydroxycitric** acid derivatives (2.63 mmoles/kg) on in vivo rates of lipogenesis.sup.1

Formula I Derivative (2S,3S-configuration, unless otherwise indicated).sup.2	Lipogenesis nanomoles .sup.14 C-alanine Percent
Y R.sub.1 Z. . .	

L48 ANSWER 42 OF 52 USPATFULL
AN 76:36697 USPATFULL
TI Citric acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Hamilton, James Guthrie, Nutley, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
Miller, O. Neal, Montclair, NJ, United States
Sullivan, Ann Clare, New York, NY, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)

PI US 3966772 19760629
AI US 74-442258 19740213 (5)
RLI Division of Ser. No. US 71-204334, filed on 2 Dec 1971, now patented, Pat. No. US 3810931
DT Utility
EXNAM Primary Examiner: Milestone, Norma S.
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 3
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 715
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Epoxyaconitic acid and esters thereof are useful for the control of lipogenesis.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM Epoxy triacids of formula Ia are readily converted to **hydroxy citric** acids of formula IIIa which, in turn, form the corresponding .gamma.-lactones of formula IV. Compounds of formulas IIIa and IV. . . IIIa may be accomplished by aqueous cleavage of the epoxide in the presence of either acid or base. Generally, the **hydroxy citric** acid IIIa is converted to the .gamma.-lactone IV in the reaction mixture during work up.
SUMM In another variation, diol IIIb may be prepared directly from **hydroxy citric** acid .gamma.-lactone of formula IV by alkanolysis of the lactone ring and concomitant esterification of the carboxyl groups. In this. . .
SUMM . . . IIIb or sulfonate ester V can be resolved. Optically active products may also be prepared starting with an optically active **hydroxy citric** acid of formula IIIa or its .gamma.-lactone of formula IV.
DETD (+)-Erythro-**hydroxycitric** acid, .gamma. lactone (Hibiscus acid) from (+)-threo-epoxyaconitic acid]
DETD (.+-.)-Threo-**hydroxycitric** acid, .gamma. lactone from (.+-.)-erythro-epoxyaconitic acid
DETD . . . in vacuo and the oily residue was heated on a steam bath for 30 min. to give 190 mg. of (.+-.)-threo-**hydroxy-citric** acid .gamma. lactone. A small amount was esterified using diazomethane in ether. Examination of the resulting ester showed it to be essentially pure (.+-.)-threo-**hydroxycitric** acid, .gamma. lactone, dimethyl ester.
DETD To a solution of (.+-.)-erythro-**hydroxycitric** acid, .gamma. lactone; (21 g.) in methanol (400 ml.) was added acetyl chloride (21 g.). The solution was brought to. . .
DETD To a cooled solution of (+)-threo-**hydroxycitric** acid .gamma. lactone ("**garcinia**" acid; 10 g.) in methanol (200 ml.) was added acetyl chloride (10 ml.). The solution was heated at reflux for. . .

L48 ANSWER 43 OF 52 USPATFULL
AN 76:35046 USPATFULL
TI Optical resolution of organic carboxylic acids
IN Perry, Clark William, Saddle River, NJ, United States
Teitel, Sidney, Clifton, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US 3965129 19760622
AI US 75-577806 19750515 (5)
RLI Division of Ser. No. US 73-404951, filed on 10 Oct 1973, now patented, Pat. No. US 3901915

DT Utility
EXNAM Primary Examiner: Milestone, Norma S.
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 1
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 405
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Racemic organic carboxylic acids are efficiently resolved into their enantiomers with antipodes of .alpha.-methyl-p-nitrobenzylamine.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
DETD Acids which are particularly preferred for use in the present resolution process are racemic threo-epoxyaconitic acid (I), racemic threo-**hydroxycitric** acid, .gamma.-lactone (racemic **Garcinia** acid lactone) (II), and racemic N-lower alkanoyl or N-benzoyl-6-chlorotryptophans, preferably racemic N-formyl-6-chlorotryptophan (III). The structures for these acids are presented. . .
DETD . . . is useful for the control of lipogenesis and also serves as an intermediate for the preparation of the .gamma.-lactone of (-)-**hydroxycitric** acid (II) and (-)-**hydroxycitric** acid itself, both of which are useful lipogenic control agents. Reference to the utility of these compounds may be found. . .
DETD . . . to different compounds. For example, the .alpha.-methyl-p-nitrobenzylamine salt of (+) -threo-epoxyaconitic acid may be directly converted to the .gamma.-lactone of (-)-**hydroxycitric** acid by opening of the epoxide and lactonization.
DETD 9.12 g (48 mmoles) racemic threo-**hydroxycitric** acid .gamma.-lactone was dissolved in 80 ml of ethanol and to this a solution of 10 g (60 mmoles) R-(+)-.alpha.-methyl-p-nitrobenzylamine. . .
DETD . . . 3.35 g of lactone. This material was crystallized from ethyl acetate-CCl.sub.4 to give 2.6 g of the .gamma.-lactone of (-)- threo-**hydroxycitric** acid [.alpha.].sub.D.sup.25 = + 106.1.degree. (1% H.sub.2 O): m.p. 179.degree.-180.5.degree.. A second crop gave 0.33 g of lactone, m.p. 178.degree.-180.degree.,. . .
DETD . . . 75.degree.-80.degree.in vacuo for 1/2 hr. to ensure lactonization. Crystallization of the residue (21 g) from EtOAc-CCl.sub.4 furnished the .gamma.-lactone of (-)-threo-**hydroxycitric** acid in two crops: 6.0 g [m.p. 174.degree.-6.degree.; [.alpha.] .sub.D.sup.25 + 105.6.degree. and 3.2 g [1/3.degree.-173.degree.; [.alpha.].sub.D.sup.25 +100.5.degree.]. The crops. . .

L48 ANSWER 44 OF 52 USPATFULL
AN 76:35038 USPATFULL
TI Salts of the .gamma.-lactone of (-)-threo-**hydroxycitric** acid with R(+)-.alpha.-methyl-p-nitrobenzylamine
IN Perry, Clark William, North Bergen, NJ, United States
Teitel, Sidney, Clifton, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US 3965121 19760622
AI US 75-577823 19750515 (5)
RLI Division of Ser. No. US 73-404951, filed on 10 Oct 1973, now patented, Pat. No. US 3901915
DT Utility
EXNAM Primary Examiner: Jiles, Henry R.; Assistant Examiner: Jaisle, C. M. S.
LREP Welt, Samuel L.; Gould, George M.; Wittekind, Raymond R.
CLMN Number of Claims: 2
ECL Exemplary Claim: 1

DRWN No Drawings
LN.CNT 405
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Racemic organic carboxylic acids are efficiently resolved into their enantiomers with antipodes of .alpha.-methyl-p-nitrobenzylamine.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM Acids which are particularly preferred for use in the present resolution process are racemic threo-epoxyaconitic acid (I), racemic threo-**hydroxycitric** acid, .gamma.-lactone (racemic **Garcinia** acid lactone) (II), and racemic N-lower alkanoyl or N-benzoyl-6-chlorotryptophans, preferably racemic N-formyl-6-chlorotryptophan (III). The structures for these acids are presented. . .
SUMM . . . is useful for the control of lipogenesis and also serves as an intermediate for the preparation of the .gamma.-lactone of (-)-**hydroxycitric** acid (II) and (-)-**hydroxycitric** acid itself, both of which are useful lipogenic control agents. Reference to the utility of these compounds may be found. . .
SUMM . . . reactions to different compounds. For example, the .alpha.-methyl-p-nitrobenzylamine salt of (+)-threo-epoxyaconitic acid may be directly converted to the .gamma.-lactone of (-)-**hydroxycitric** acid by opening of the epoxide and lactonization.
SUMM . . . acid, that is, two of the three available carboxyl groups are involved in salt formation. In the resolution of racemic threo-**hydroxycitric** acid, .gamma.-lactone with approximately 1.25 moles of resolving agents for each mole of acid, there is obtained a salt which. . .
SUMM . . . phenomenon is of extreme importance for the resolution of racemic compounds. Thus, for example, for the resolution of threo-epoxyconitic acid, threo-**hydroxycitric** acid, .gamma.-lactone and N-formyl-6-chlorotryptophan, no crystalline salt could be obtained utilizing antipodes of .alpha.-methylbenzylamine as potential resolving agents, whereas high. . .
DETD 9.12 g (48 mmoles) racemic threo-**hydroxycitric** acid .gamma.-lactone was dissolved in 80 ml of ethanol and to this a solution of 10 g (60 mmoles) R-(+)-.alpha.-methyl-p-nitrobenzylamine. . .
DETD . . . give 3.35 g of lactone. This material was crystallized from ethyl acetate-CCl.sub.4 to give 2.6 g of the .gamma.-lactone of (-)-threo-**hydroxycitric** acid [.alpha.].sub.D.sup.25 =+106.1.degree. (1% H.sub.2 O): m.p. 179.degree.-180.5.degree.. A second crop gave 0.33 g of lactone, m.p. 178.degree.-180.degree., [.alpha.].sub.D.sup.25 +106.4.degree..
DETD . . . in vacuo for 1/2 hr. to ensure lactonization. Crystallization of the residue (21 g) from EtOAc-CCl.sub.4 furnished the .gamma.-lactone of (-)-threo-**hydroxycitric** acid in two crops: 6.0 g [m.p. 174.degree.-6.degree.; [.alpha.].sub.D.sup.25 +105.6.degree.] and 3.2 g [168.degree.-173.degree.;[.alpha.].sub.D.sup.25 +100.5.degree.]. The crops were combined. . .
CLM What is claimed is:
1. Salts of the .gamma.-lactone of (-)-threo-**hydroxycitric** acid with R(+)-.alpha.-methyl-p-nitrobenzylamine.

L48 ANSWER 45 OF 52 USPATFULL
AN 75:61094 USPATFULL
TI **Hydroxycitric** acid derivatives
IN Guthrie, Robert William, Fairfield, NJ, United States
Kierstead, Richard Wightman, North Caldwell, NJ, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)

PI US 3919254 19751111
AI US 73-376478 19730705 (5)
RLI Division of Ser. No. US 71-204288, filed on 2 Dec 1971, now patented, Pat. No. US 3767678
DT Utility
EXNAM Primary Examiner: Rush, Raymond V.; Assistant Examiner: Tighe, Anne Marie T.
LREP Welt, Samuel L.; Saxe, Jon S.; Wittekind, Raymond R.
CLMN Number of Claims: 9
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 748
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Ester and amide derivatives of threo-**hydroxycitric** acid .gamma.-lactone inhibit fatty acid synthesis in biological systems and are useful in the treatment of obesity and in correcting conditions of lipid abnormalities.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM . . . sequence of reactions depicted in Reaction Scheme A. The starting material for this reaction sequence is racemic or optically active threo-**hydroxycitric** acid .gamma.-lactone (II). The (+)-antipode of formula II is a well known natural product, **Garcinia** acid, obtainable by isolation from the fruit of **Garcinia** cambogia using known procedures.
SUMM . . . novel compounds of the present invention may be conveniently prepared via the intermediate anhydride III. The anhydride is prepared from threo-**hydroxy citric** acid .gamma.-lactone II by treatment of the latter with an anhydrating agent. An anhydrating agent is defined as an agent. . .
DETD A. A mixture of (+)-threo-**hydroxycitric** acid .gamma. lactone [2(S), 3(S)-tetrahydro-3-hydroxy-5-oxo-furan-2,3-dicarboxylic acid, (+)-**Garcinia** acid] (28.0 g.) and acetic anhydride (150 ml.) was maintained at 95.degree. (steam bath) for 30 minutes, then the solvent. . .
DETD B. A solution of (+)-threo-**hydroxycitric** acid .gamma. lactone (20 g.) in acetic anhydride (80 ml.) and acetyl chloride (40 ml.) was heated at reflux under. . .
DETD On the last of feeding, at a specified time before initiation of the meal, the **hydroxycitric** acid derivative in ASV of the composition sodium chloride 0.9%, carboxy methyl cellulose 0.5%, benzyl alcohol 0.86% and tween 80. . .
DETD Effect of oral administration of **hydroxycitric** acid derivatives (2.63 mmoles/kg) on in vivo rates of lipogenesis.sup.1

Formula I Derivative (2S,3S-configuration, unless otherwise indicated).sup.2		Lipogenesis
Y	R.sub.1	
	Z	nanomoles .sup.14. . .

L48 ANSWER 46 OF 52 USPATFULL
AN 75:43689 USPATFULL
TI Optical resolution of organic carboxylic acids
IN Perry, Clark William, Saddle River, NJ, United States
Teitel, Sidney, Clifton, NJ, United States

PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US 3901915 19750826
AI US 73-404951 19731010 (5)
DT Utility
EXNAM Primary Examiner: Gotts, Lewis; Assistant Examiner: Williams, S. P.
LREP Welt, Samuel L.; Saxe, Jon S.; Wittekind, Raymond R.
CLMN Number of Claims: 6
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 421
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Racemic organic carboxylic acids are efficiently resolved into their enantiomers with antipodes of .alpha.-methyl-p-nitrobenzylamine.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM Acids which are particularly preferred for use in the present resolution process are racemic threo-epoxyaconitic acid (I), racemic threo-**hydroxycitric** acid, .gamma.-lactone (racemic **Garcinia** acid lactone) (II), and racemic N-lower alkanoyl-or N-benzoyl-6-chlorotryptophans, preferably racemic N-formyl-6-chlorotryptophan (III). The structures for these acids are presented below.. . .
SUMM . . . is useful for the control of lipogenesis and also serves as an intermediate for the preparation of the .gamma.-lactone of (-)-**hydroxycitric** acid (II) and (-)-**hydroxycitric** acid itself, both of which are useful lipogenic control agents. Reference to the utility of these compounds may be found. . .
SUMM . . . reactions to different compounds. For example, the .alpha.-methyl-p-nitrobenzylamine salt of (+)-threo-epoxyaconitic acid may be directly converted to the .gamma.-lactone of (-)-**hydroxycitric** acid by opening of the epoxide and lactonization.
DETD 9.12 g (48 mmoles) racemic threo-**hydroxycitric** acid .gamma.-lactone was dissolved in 80 ml of ethanol and to this a solution of 10 g (60 mmoles) R-(+)-.alpha.-methyl-p-nitrobenzylamine. . .
DETD . . . give 3.35 g of lactone. This material was crystallized from ethyl acetate-CCl.sub.4 to give 2.6 g of the .gamma.-lactone of (-)-threo-**hydroxycitric** acid [.alpha.].sub.D.sup.25 =+106.1.degree. (1% H.sub.2 O): m.p. 179.degree.-180.5.degree.. A second crop gave 0.33 g of lactone, m.p. 178.degree.-180.degree., [.alpha.].sub.D.sup.25 +106.4.degree..
DETD . . . in vacuo for 1/2 hr. to ensure lactonization. Crystallization of the residue (21 g) from EtOAc-CCl.sub.4 furnished the .gamma.-lactone of (-)-threo-**hydroxycitric** acid in two crops: 6.0 g [m.p. 174.degree.-6.degree.; [.alpha.].sub.D.sup.25 +105.6.degree.] and 3.2 g [168.degree.-173.degree.;[.alpha.].sub.D.sup.25 +100.5.degree.]. The crops were combined. . .
CLM What is claimed:
. . . A process for the optical resolution of a racemic organic carboxylic acid selected from the group consisting of threo-epoxyaconitic acid, threo-**hydroxycitric** acid, gamma-lactone, N-benzoyl-6-chlorotryptophan and N-lower alkanoyl-6-chlorotryptophan which comprises: a. contacting said acid with an optical antipode of .alpha.-methyl-p-nitrobenzylamine in an. . .
5. The process of claim 1 wherein the racemic organic carboxylic acid is the .gamma. -lactone of threo-**hydroxycitric** acid.

L48 ANSWER 47 OF 52 USPATFULL
AN 73:46590 USPATFULL
TI METHOD OF TREATING OBESITY

IN Lowenstein, John M., Wellesley Hills, MA, United States
PA Hoffmann-La Roche Inc., Nutley, NJ, United States (U.S. corporation)
PI US 3764692 19731009
AI US 70-77042 19700930 (5)
RLI Continuation-in-part of Ser. No. US 69-872413, filed on 29 Oct 1969, now abandoned
DT Utility
EXNAM Primary Examiner: Meyers, Albert T.; Assistant Examiner: Drezin, Norman A.
LREP Welt; Samuel L.; Saxe; Jon S.; Leon; Bernard S.; Epstein; William H.; Gould; George M.
CLMN Number of Claims: 12
DRWN No Drawings
LN.CNT 472
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The inhibition of fatty acid synthesis is obtained in biological systems by utilizing a specific stereoisomer of **hydroxycitric** acid and derivatives thereof such as esters or lactones and the non-toxic salts of these compounds. It is believed that the present method involves the inhibition of citrate cleavage enzyme. Inhibition of fatty acid synthesis by the present method is useful in the treatment of obesity.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM . . . to a method of inhibiting fatty acid synthesis in biological systems by introducing into such systems a specific stereoisomer of **hydroxycitric** acid or derivatives thereof. The biological systems in which the method of the present invention may be practiced include cell. . .
SUMM The stereoisomers of **hydroxycitric** acid and its derivatives are related structurally to citric acid wherein a hydroxy group is substituted for one of the four methylene hydrogens of citric acid. Thus, there are four possible stereoisomers of **hydroxycitric** acid. Of these four stereoisomers one has been found to inhibit substantially fatty acid synthesis in biological systems. This particular isomer is (-)**hydroxycitric** acid hereinafter called **garcinia** acid. It is obtainable by isolation from the fruit of **Garcinia** cambogia using known procedures. For example, this isolation may be accomplished following the procedure described by Lewis in "Methods in. . .
SUMM **Garcinia** acid is usually isolated in the form of its lactone. The free acid may be conveniently obtained from the lactone. . .
SUMM The term "derivatives" as used herein in conjunction with **garcinia** acid is meant to include **garcinia** acid lactone, derivatives of one or more carboxyl groups of **garcinia** acid, e.g., mono, di or tri esters of **garcinia** acid or mono or di esters of its lactone and non-toxic pharmaceutically acceptable basic salts of **garcinia** acid or the lactone or esters thereof.
SUMM Ester derivatives of **garcinia** acid which are useful in the practice of the present invention include the lower alkyl, aryl and aryl-lower alkyl esters.. . . are branched or straight chain lower alkyl radicals having from one to seven carbon atoms. Preferred lower alkyl esters of **garcinia** acid include the methyl, ethyl, isopropyl and butyl esters. Examples of aryl esters include the phenyl and substituted phenyl esters,. . . lower alkoxy or nitro. Benzyl represents a preferred aryl alkyl ester. The aforesaid esters may be prepared by esterification of **garcinia** acid with a desired alcohol in the presence of excess mineral acid such as sulfuric acid, hydrobromic acid, or the. . .
SUMM The **garcinia** acid may also be utilized in the form of its

pharmaceutically acceptable non-toxic basic salt. Preferred salts for this purpose. . .

SUMM The inhibition of fatty acid synthesis in biological systems by the use of **garcinia** acid or its derivatives is believed to arise from the inhibition by such compounds of citrate cleavage enzyme contained in. . .

SUMM **Garcinia** acid and its derivatives are useful in the treatment of obesity. These compounds can be made up in the form. . .

SUMM A suitable pharmaceutical dosage unit can contain from about 15 to 600 mg. of **garcinia** acid or its derivatives. Suitable parenteral dosage regimens in mammals comprise from 1 mg/kg to about 25 mg/kg per day.. . .

DETD . . . Hydroxamate formed (mumoles/mg/min.)

None	0	210	405
Homocitrate, 25 mM	6	52	310
Homoisocitrate, 25 mM	12	190	401
Homoaconitate, 25 mM	12	198	385
Garcinia acid, 1 mM	0	2	101

DETD table I indicates that **garcinia** acid is a strong inhibitor of citrate cleavage enzyme as evidenced by a lower rate of hydroxamate formation in the. . . citric acid which were tested produced much less inhibition even though they were used at twenty-five times the level of **garcinia** acid.

DETD This example demonstrates the stereo-specific nature of the citrate cleavage enzyme inhibition exhibited by **garcinia** acid. In this experiment the assay method described in Example 1 was utilized with the exception that **garcinia** acid and its stereoisomer (+)-allo-**hydroxycitric** acid were added in the amounts indicated below in Table 2.

DETD	Citrate concentration (mM)	
Substance added	0.5	10
	Citrate cleaved (mumoles/min.)	
None	69	165
Garcinia acid		
10 .mu.M	25	144
100 .mu.M	6	96
(+)-Allohydroxy citric acid		
100 .mu.M	68	162
1000 .mu.M	33	140

DETD as seen from the results summarized in Table 2, **garcinia** acid is a more potent inhibitor of citrate cleavage enzyme than its structurally related stereoisomer (+)-allohydroxy citric acid.

DETD This example demonstrates the inhibition of lipogenesis effected by treatment with **garcinia** acid in isolated rat liver slices. In these experiments Charles River female rats 150-175 gm. were fasted for two days. . .

DETD . . . of alanine was included along with the transaminase acceptor .alpha.-keto glutaric acid in molar ratio 2:3 at pH 7.4-7.6. Synthetic **garcinia** acid was added either in the lactone or free acid form in the final concentration indicated below. Incubations were carried. . .

DETD . . . for 60 minutes with 10 mM .sup.14 C-alanine and 15 mM .alpha.-ketoglutarate. Table 3 illustrates the inhibition of lipogenesis by **garcinia** acid under these conditions.

DETD	Sample Additions	m.mu.moles/gm/60"	% Inhibition
1	Control	167.5	
2	5 .mu.M **Garcinia** Acid*	159.2	5.0
3	50 .mu.M **Garcinia** Acid*	118.9	29.0

4 500 .mu.M **Garcinia** Acid* 80.9 51.7
*neutralized to pH 7.4

DETD table 4 demonstrates the inhibition by both **garcinia** acid and **garcinia** acid lactone in liver slices incubated for 60 minutes with 5 mM .sup.14 C-alanine and 7.5 mM .alpha.-ketoglutaric acid. From these data the physiological, apparent inhibition constant (K.sub.i) of **garcinia** acid was 350 .mu.M and the K.sub.i of **garcinia** acid lactone was 30 .mu.M.

	Sample Additions	m.mu.moles/gm/60"	% Inhibition
1	Control	144.1	
2	4 .mu.M **Garcinia** Acid*	128.8	10.6
3	50 .mu.M **Garcinia** Acid*	109.9	23.7
4	500 .mu.M **Garcinia** Acid*	52.0	63.9
5	5000 .mu.M **Garcinia** Acid*	76.5	46.9
6	5 .mu.M **Garcinia** Acid Lactone	89.0	38.2
7	50 .mu.M **Garcinia** Acid Lactone	57.9	59.8
8	500 .mu.M **Garcinia** Acid Lactone	62.7	56.5
9	5000 .mu.M **Garcinia** Acid Lactone	39.5	72.6

*neutralized to pH 7.4

DETD table 5 demonstrates the time kinetics of inhibition by **garcinia** acid under the same experimental conditions observed in Table 4.

Sample	Additions	Time (in minutes)	m.mu.moles/ gm/t	% Inhibition
1	Control	60	110.3	
2	500 .mu.M **Garcinia** Acid*	60	83.7	24.1
3	Control	90	239.6	
4	500 .mu.M **Garcinia** Acid*	90	137.4	42.6
5	Control	120	737.4	
6	500 .mu.M **Garcinia** Acid*	120	248.1	66.3

*neutralized to pH 7.4

DETD This example demonstrates the in vivo activity of synthetic **garcinia** acid and its lactone. Individual groups of Charles River female rats 150-175 gm. were fasted for two days and "meal". . .

DETD . . . .mu.c .sup.14 C-alanine (specific activity = 156 mc/mM) dissolved in a total volume of 0.25 ml. saline pH 7.4-7.6. Synthetic **garcinia** acid either in the free acid or lactone form was dissolved in a total volume of 0.25 ml. saline at. . .

DETD . . . "meal" fed as above for 3 days. On the last day of refeeding one group received 10 mg. of synthetic **garcinia** acid in the lactone form dissolved in a total volume of 0.25 ml. saline, pH 7.4-7.6 by tail vein injections 60 minutes prior to .sup.14 C-alanine. An additional 5 mg. of **garcinia** acid lactone was given with the .sup.14 C-alanine. Control animals received only the .sup.14 C-alanine injection. Inhitibion of lipogenesis by **garcinia** acid lactone is illustrated in Table 6 below. In this table rats numbers 1-7 represent controls while rats numbers 8-14 received **garcinia** acid lactone.

DETD . . . m.mu.moles/gm/30"

1	218.1
2	445.0
3	187.3
4	228.7
5	388.8
6	180.7

7	729.7	
	339.8	S.E.M. .+-. 75.7
8 (**Garcinia** Acid Lactone)	83.5	
9	63.4	
10	104.8	
11	34.9	
12	65.4	
13	49.2	
14	66.5	
	66.8	S.E.M. .+-. 8.5

Inhibition =. . .

DETD . . . fed the high dextrose diet for 5 days. On the last day of refeeding, 4 rats received 10 mg. of **garcinia** acid lactone 60 minutes prior to .sup.14 C-alanine and an additional 4.6 mg. of **garcinia** acid lactone was injected with the .sup.14 C-alanine. Table 7 indicates inhibition of the **garcinia** acid lactone treated animals numbers 5-8 compared with the controls numbers 1-4.

DETD Rat No. (Controls)	m.mu.moles/gm/30"	
1	1018.9	
2	1554.4	
3	836.2	
4	782.4	
	1048	S.E.M. .+-. 176.3
5 (**Garcinia** Acid Lactone)	386.1	
6	249.1	
7	290.9	
8	257.8	
	296	S.E.M. .+-. 31.4

Inhibition = 72%

DETD A solution of (+)-**garcinia** acid lactone (10 g.) in tetrahydrofuran (100 ml.) was treated with a solution of diazomethane in ether until the yellow. . . hour then the solvent was removed in vacuo and the residue crystallized from ether haxane to give 8.0 g. of (+)-**garcinia** acid lactone dimethyl ester, m.p. 70.degree.-72.degree.. A second crop (2.4 g.; m.p. 65.degree.-70.degree.) was obtained from the mother liquors. Crystallization. . .

DETD (+)-**Garcinia** acid lactone (1.0 g.) was added to dry liquid ammonia (10 ml.) and the mixture was stirred until the solids. . . ml.). The acidic eluent was evaporated to dryness to give a colorless solid. Crystallization from methanol-ethanol afforded 800 mg. of (+)-**garcinia** acid lactone mono ammonium salt, m.p. 231.degree. (decomposition); [.alpha.] .sub.25.sup.D +92.9.degree. (c, 1.0, H.sub.2 O); ir (KBr) 3,460-2,500 (broad), 1,800,. . .

DETD Acetyl chloride (3.0 ml.) was added to aboslute ethanol (50 ml.), then after several minutes (+)-**garcinia** acid lactone (5.0 g.) was added and the solution heated under reflux for three hours. Molecular sieve -3A in a. . . mm; ir (CHCl.sub.3) - 3,600, 1,810 and 1,745 cm.sup. .sup.-1. Nmr analysis indicated that it was a 2:1 mixture of (+)-**garcinia** acid lactone diethyl ester and **garcinia** acid triethyl ester.

DETD

	Per Capsule
Garcinia acid lactone	10 mg
Lactose, U.S.P.	165 mg
Corn Starch, U.S.P.	30 mg
Talc, U.S.P.	5 mg
Total Weight	210 mg

DETD 1. **Garcinia** acid lactone, lactose and corn starch were mixed

in a suitable mixer.

DETD	Per Capsule
Garcinia acid lactone	50 mg
Lactose, U.S.P.	125 mg
Corn Starch, U.S.P.	30 mg
Talc, U.S.P.	5 mg
	Total Weight 210 mg

DETD 1. **Garcinia** acid lactone was mixed with lactose and corn starch in a suitable mixer.

DETD	Per Tablet
Garcinia acid lactone	25.00 mg
Dicalcium Phosphate Dihydrate, Unmilled	175.00 mg
Corn Starch	24.00 mg
Magnesium Stearate	1.00 mg
	Total Weight 225.00 mg

DETD 1. **Garcinia** acid lactone and corn starch were mixed together and passed through an -00 screen in Model "J" Fitzmill with hammers. . .

DETD	Per Tablet
Garcinia acid lactone	100 mg
Lactose, U.S.P.	202 mg
Corn Starch, U.S.P.	80 mg
Amijel BOll*	20 mg
Calcium Stearate	8 mg
	Total Weight 410. . .

DETD 1. **Garcinia** acid lactone, lactose, corn starch, and Amijel B011 were blended in a suitable mixer.

CLM What is claimed:

. . . to a mammal in need of such treatment an effective amount of a compound selected from the group consisting of **garcinia** acid, **garcinia** acid lactone, mono-, di- and tri- lower alkyl, phenyl and benzyl esters of **garcinia** acid, mono- and di-lower alkyl, phenyl and benzyl esters of **garcinia** acid lactone, wherein lower alkyl is from one to seven carbon atoms, and non-toxic

4. The method of claim 1 wherein an ester of **garcinia** acid or **garcinia**

7. A pharmaceutical composition for the treatment of obesity comprising a pharmaceutical carrier and an effective amount of a compound selected from the group consisting of **garcinia** acid, **garcinia** acid lactone, mono-, di- and tri-lower alkyl, phenyl and benzyl esters of **garcinia** acid, mono- and di-lower alkyl, phenyl and benzyl esters of **garcinia** acid lactone, wherein lower alkyl is from one to seven carbon atoms, and non-toxic

9. The composition of claim 7 wherein said compound is **garcinia** acid

L48 ANSWER 48 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1971:492246 HCAPLUS
DN 75:92246
TI Structure and absolute configuration of the calcium salt of **garcinia** acid, the lactone of (-)-**hydroxycitric** acid
AU Glusker, Jenny P.; Minkin, Jean A.; Casciato, Carol A.
CS Inst. Cancer Res., Philadelphia, Pa., USA
SO Acta Crystallogr., Sect. B (1971), 27(Pt. 7), 1284-93
CODEN: ACBCAR

DT Journal
LA English
AB The Ca salt of the lactone of (-)-**hydroxycitric** acid crystallizes in the orthorhombic system as a tetrahydrate. Unit-cell dimensions are a = 8.680, b = 17.299, c = 7.135 .ANG.. The space group is P21212 with four units of Ca(C6O7H4).4H2O per cell. The structure was solved by heavyatom techniques and was refined by the full-matrix least-squares method to an R value of 0.050 by using 1371 reflections, 97 of which were below the threshold of measurement. All hydrogen atoms were found from a difference map and their parameters were refined. The abs. configuration of the free (-)-**hydroxycitric** acid, detd. from anomalous dispersion measurements on the lactone salt, is (1S,2S)1,2-dihydroxy-1,2,3-propanetricarboxylic acid. The 2 carboxyl groups are cis with respect to the plane of the lactone ring and the 2 >C(CO2-)O- groupings are each almost planar. The lactone forms a bidentate chelate with Ca2+. The ion is surrounded by eight oxygen atoms in a square antiprism arrangement, with Ca-O distances of 2.39-2.52 .ANG., and with one face of the coordination polyhedron shared with that of another calcium ion.
ST **garcinia** acid salt structure; calcium **garciniate** structure
IT Crystal structure
(of **garcinia** acid calcium salt)
IT Configuration
(of **garcinia** acid calcium salt, abs.)

L48 ANSWER 49 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1970:89707 HCAPLUS
DN 72:89707
TI Isolation and properties of **hydroxycitric** acid
AU Lewis, Yohan Srimanth
CS Cent. Food Technol. Res. Inst., Mysore, India
SO Methods Enzymol. (1969), 13, 613-19
CODEN: MENZAU
DT Journal
LA English
AB **Hydroxycitric** acid (1,2-dihydroxypropane-1,2,3-tricarboxylic acid)can exist as 4 isomers. The acid as a lactone is isolated from the dried fruit rinds of **Garcinia** cambogia by formation of the K+ salt or by **extn.** with acetone. An isomer is **extd.** from the calyxes of Hibiscus sabdariffa by acetone **extn.** The lactones and acids are hygroscopic, and sol. in water and alc. The melting point of one lactone is 183.degree., that of another 178.degree..
ST **hydroxy citric** acids; citric acids hydroxy; lactones **hydroxy citric** acids
IT **27750-10-3P 27750-11-4P** 27750-12-5P 27750-13-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
IT **27750-10-3P 27750-11-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

L48 ANSWER 50 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1969:475298 HCAPLUS
DN 71:75298
TI Absolute configurations of the naturally occurring **hydroxycitric** acids
AU Glusker, Jenny P.; Minkin, Jean A.; Casciato, Carol A.; Soule, Frederic B.
CS Inst. for Cancer Res., Philadelphia, Pa., USA

SO Arch. Biochem. Biophys. (1969), 132(2), 573-5
CODEN: ABBIA4
DT Journal
LA English
AB Since there are 2 asymmetric C atoms in the **hydroxycitric** acid mols., there are 4 isomers, and a detn. of the abs. configurations of the 2 cryst. compds. would define the configurations of all 4 isomers. The detn. of the abs. configurations of the 2 lactones was made by x-ray crystallography. The structure of each lactone Ca salt was found by an anal. of its Patterson map by vector superposition methods. Intensity measurements showed that "**garcinia** acid," the lactone of (-)-**hydroxycitric** acid, is (2S, 3S)-2-**hydroxycitric** acid 2,5-lactone, and that "hibiscus acid," the lactone of (+)-allohydroxycitric acid, is (2S, 3R)-2-**hydroxycitric** acid 2,5-lactone. (-)-**Hydroxycitrate** has an analogous configuration to that predicted for the isomer of monofluorocitric acid, which is a powerful inhibitor of aconitase (D. W. Fanshier, et al., 1964). The fact that the (-)-**hydroxycitrate** is isolated from a plant used for food suggests that this is not the powerful inhibitor that its fluoro analog is.
ST configuration **hydroxycitric** acids; **hydroxycitric** acids configuration; citric acids hydroxy

L48 ANSWER 51 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1969:105772 HCAPLUS
DN 70:105772
TI Naturally occurring lactones and lactams. III. Absolute configuration of the **hydroxycitric** acid lactones: hibiscus acid and **garcinia** acid
AU Boll, Per M.; Soerensen, Else; Balieu, Erik
CS Univ. Copenhagen, Copenhagen, Den.
SO Acta Chem. Scand. (1969), 23(1), 286-93
CODEN: ACSAA4
DT Journal
LA English
AB The abs. configuration of the **hydroxycitric** acid lactones, hibiscus acid and **garcinia** acid is (2S,3R)- and (2S,3S)-2-**hydroxycitric** acid 2,5-lactone, resp. The relative configuration is detd. from titrn. and detn. of the dissocn. consts., synthesis of the acids from trans- and cis-aconitic acid, and ir and N.M.R. data. The abs. configuration is detd. from Hudson's lactone rule, O.R.D. and circular dichroism curves, and calcn. of partial molar rotations.
ST citric acid lactones configuration; lactones citric acid configuration; configuration citric acid lactones; hibiscus **garcinia** acids configuration; **garcinia** hibiscus acids configuration
IT Molecular structure, elucidated
(of **garcinia** acid)
IT Configuration
(of **hydroxycitric** acid lactones)
IT 469-72-7 4272-01-9 4272-10-0 4307-67-9 4307-71-5
23053-06-7 23053-07-8 23053-08-9
RL: PROC (Process)
(optical rotatory dispersion of)
IT **23053-06-7 23053-07-8**
RL: PROC (Process)
(optical rotatory dispersion of)

L48 ANSWER 52 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1999:245282 HCAPLUS

TI Separation of **Hydroxycitric** Acid Lactone from Fruit Pectins and Polyhydroxyphenols on Polybenzimidazole Weak-Base Resin
AU Chanda, M.; Rempel, G. L.
CS Department of Chemical Engineering, University of Waterloo, Waterloo, ON, N2L 3G1, Can.
SO Ind. Eng. Chem. Res.) ACS ASAP
CODEN: IECRED; ISSN: 0888-5885
PB American Chemical Society
DT Journal
LA English
AB Polybenzimidazole (PBI) free-base resin has been used for selective sorption and recovery of **hydroxycitric** acid lactone (HCAL) from aq. solns. contg. also significant proportions of polyhydroxyphenols and fruit pectins, because the study has relevance to the problem of sepn. and recovery of HCAL, a potent antiobesity substance, from aq. **exts.** of **Garcinia** cambogia fruits, grown largely in coastal areas of South India. PBI resin has the satn. sorption capacity of 315 mg/g dry resin for HCAL, compared with 131, 138, and 293 for catechol, pyrogallol, and pectin, resp., in individual sorptions from aq. solns. The resin selectivity for HCAL over catechol, pyrogallol, and pectin in binary sorptions varies with pH, the sepn. factor of HCAL being max. over catechol and pyrogallol at a pH of 1.7-1.8 and infinite over pectin at pH < 1.8. Under vigorous agitation the initial uptake of HCAL is very fast with 30% of the equil. sorption taking place in 10 s, followed by a significantly lower rate, leading to an overall 75% attainment of equil. sorption in 30 min. In continuous column operations with PBI resin and influent contg. HCAL, polyhydroxyphenols, and fruit pectins, a proper combination of relatively low flow rate, a relatively low substrate pH (1.7-1.8), and "dead-end" stripping with alkali, which involves use of less than the theor. amt. of stripping agent necessary for complete stripping, produces an excellent sepn. and good yield of HCAL from the mixed influent.

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FROM JANUARY 1969 TO DATE.

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L59 ANSWER 1 OF 8 BIOSIS COPYRIGHT 1999 BIOSIS
AN 1999:149013 BIOSIS
DN PREV199900149013
TI Quantitative analysis of (-)**hydroxy citric** acid and (-)**hydroxy citric** acid lactone in **Garcinia** fruits and **Garcinia** products.
AU Antony, J. I. X. (1); Josan, P. D.; Shankaranarayana, M. L.
CS (1) Kancor Flavours Extracts Ltd., Post Bag No. 3, Angamally South 683 573

```
FILE 'HOME' ENTERED AT 13:08:17 ON 17 MAY 1999

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'BEISTEIN' IS NOT A VALID FILE NAME
SESSION CONTINUES IN FILE 'HOME'
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that are available.  If you have requested multiple files, you can
specify a corrected file name or you can enter "IGNORE" to continue
accessing the remaining file names entered.

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                                                         ENTRY    SESSION
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Institut fuer Literatur der organischen Chemie

FILE LAST UPDATED: 1 MAR 1999

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*** FILE CONTAINS 7,446,355 SUBSTANCES ***

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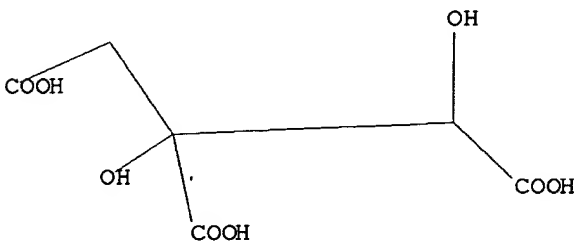

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SAMPLE SEARCH INITIATED 13:10:12 FILE 'BEILSTEIN'
SAMPLE SCREEN SEARCH COMPLETED - 2 TO ITERATE
100.0% PROCESSED 2 ITERATIONS 0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 2 TO 124
PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1

=> s l1 full

FULL SEARCH INITIATED 13:10:23 FILE 'BEILSTEIN'
FULL SCREEN SEARCH COMPLETED - 47 TO ITERATE
100.0% PROCESSED 47 ITERATIONS 5 ANSWERS
SEARCH TIME: 00.00.06

L3 5 SEA SSS FUL L1

=> d ide fa 1-5

L3 ANSWER 1 OF 5 BEILSTEIN COPYRIGHT 1999 BEILSTEIN CD&S

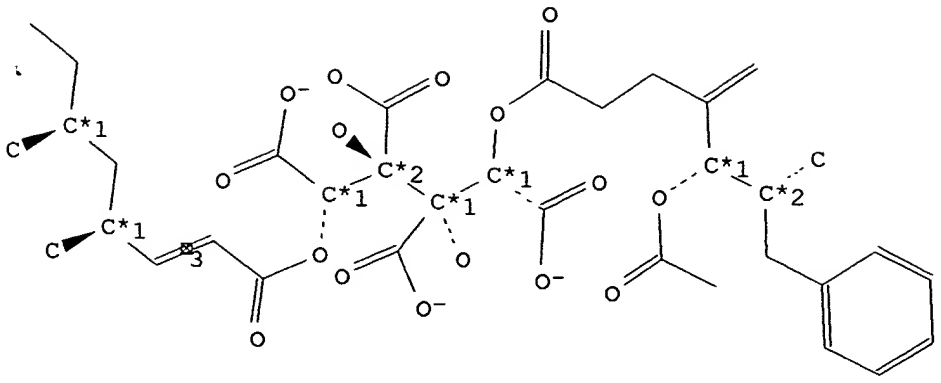
Beilstein Reg. No. (BRN): 6841636 Beilstein
Molecular Formula (MF): C35 H43 O16 . 3 K
Lin. Struct. Formula (LSF): C35H43O16(3-)*K(1+)*K(1+)*K(1+)
Beilstein Reference (SO): 6-10
General Comments (NTE): Stereo compound

Component Data:

Component Reg. No. (CBRN)	Component Molec. Formula (CMF)	Formula Weight (FW)	Lawson Number (LN)
6839939	C35 H43 O16	719.72	11808, 2290, 1349, 1155
3587172	K	39.10	

CM 1

CBRN 6839939
CMF C35 H43 O16



Atom/Bond Notes:
1. CIP Descriptor: S
2. CIP Descriptor: R
3. CIP Descriptor: E

CM 2

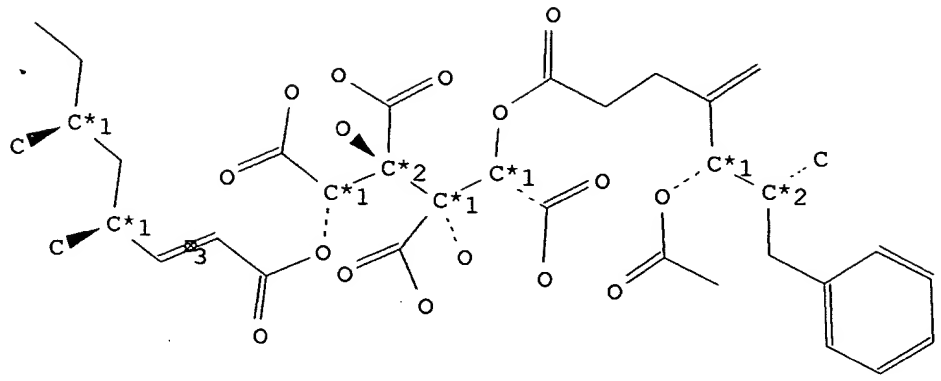
CBRN 3587172
CMF K

Field Availability:

Code	Name	Occur. (OCC)
MF	Molecular Formula	1
LSF	Linearized Structure Formula	1
FW	Formula Weight	2
SO	Beilstein Citation	1
LN	Lawson Number	4
NTE	Notes	1
SF	Stereo Family	1
PRE	Preparation	1
CTCPL	Coupling Phenomena	1
NMRA	NMR Absorption	2
IRM	Infrared Maximum	1

L3 ANSWER 2 OF 5 BEILSTEIN COPYRIGHT 1999 BEILSTEIN CD&S

Beilstein Reg. No. (BRN): 6839239 Beilstein
Molecular Formula (MF): C35 H46 O16
Autonom Name (AUN): 2-<4-(1-acetoxy-2-methyl-3-phenyl-propyl)-pent-4-enoyloxy>-3,4-dicarboxy-5-(4,6-dimethyl-oct-2-enoyloxy)-3,4-dihydroxy-hexanedioic acid
Beilstein Reference (SO): 6-10
General Comments (NTE): Stereo compound
Formula Weight (FW): 722.74
Lawson Number (LN): 11808; 2290; 1349; 1155



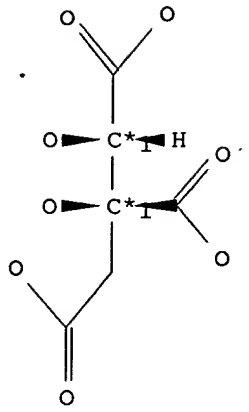
Atom/Bond Notes:
1. CIP Descriptor: S
2. CIP Descriptor: R
3. CIP Descriptor: E

Field Availability:

Code	Name	Occur. (OCC)
MF	Molecular Formula	1
AUN	Autonom Name	1
FW	Formula Weight	1
SO	Beilstein Citation	1
LN	Lawson Number	4
NTE	Notes	1
SF	Stereo Family	1
BF	Biological Function	1

L3 ANSWER 3 OF 5 BEILSTEIN COPYRIGHT 1999 BEILSTEIN CD&S

Beilstein Reg. No. (BRN): 1913757 Beilstein
Molecular Formula (MF): C6 H8 O8
Synonym (SY): Garciniasaeure
Autonom Name (AUN): 3-carboxy-2,3-dihydroxy-pentanedioic acid
Beilstein Reference (SO): 5-03; 6-03
General Comments (NTE): Stereo compound
CAS Reg. No. (RN): 6205-14-7; 6205-15-8; 6385-10-0; 27750-10-3; 27750-11-4; 56323-59-2; 56323-60-5
Rltd. Stereoisomers (RSI): 1728465; 1913756
Formula Weight (FW): 208.12
Lawson Number (LN): 2284



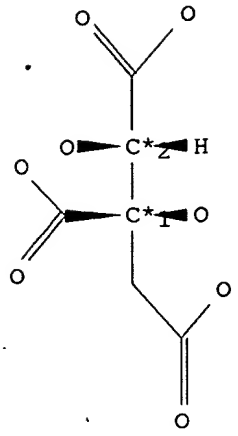
Atom/Bond Notes:
1. CIP Descriptor: S

Field Availability:

Code	Name	Occur. (OCC)
MF	Molecular Formula	1
SY	Synonym	1
AUN	Autonom Name	1
FW	Formula Weight	1
SO	Beilstein Citation	2
LN	Lawson Number	1
RN	CAS Registry Number	7
NTE	Notes	1
RSI	Related Stereo Isomers	2
SF	Stereo Family	1
PRE	Preparation	1
ORP	Optical Rotatory Power	1
BF	Biological Function	2
CDER	Chemical Derivative	1

L3 ANSWER 4 OF 5 BEILSTEIN COPYRIGHT 1999 BEILSTEIN CD&S

Beilstein Reg. No. (BRN): 1913756 Beilstein
Molecular Formula (MF): C6 H8 O8
Synonym (SY): Hibiscussaeure
Autonom Name (AUN): 3-carboxy-2,3-dihydroxy-pentanedioic acid
Beilstein Reference (SO): 5-03
General Comments (NTE): Stereo compound
CAS Reg. No. (RN): 6205-14-7; 6205-15-8; 6385-10-0; 27750-10-3; 27750-11-4; 56323-59-2; 56323-60-5
Rltd. Stereoisomers (RSI): 1728465; 1913757
Formula Weight (FW): 208.12
Lawson Number (LN): 2284



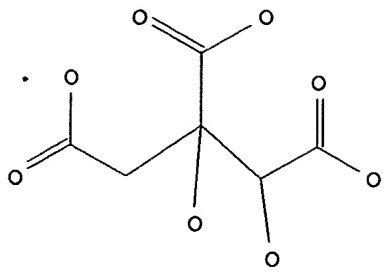
Atom/Bond Notes:
1. CIP Descriptor: R
2. CIP Descriptor: S

Field Availability:

Code	Name	Occur. (OCC)
MF	Molecular Formula	1
SY	Synonym	1
AUN	Autonom Name	1
FW	Formula Weight	1
SO	Beilstein Citation	1
LN	Lawson Number	1
RN	CAS Registry Number	7
NTE	Notes	1
RSI	Related Stereo Isomers	2
SF	Stereo Family	1
ORP	Optical Rotatory Power	1

L3 ANSWER 5 OF 5 BEILSTEIN COPYRIGHT 1999 BEILSTEIN CD&S

Beilstein Reg. No. (BRN): 1728465 Beilstein
Molecular Formula (MF): C6 H8 O8
Chemical Name (CN): 1,2-dihydroxy-propane-1,2,3-tricarboxylic acid
1,2-Dihydroxy-propan-1,2,3-tricarbonsaeure
Autonom Name (AUN): 3-carboxy-2,3-dihydroxy-pentanedioic acid
Beilstein Reference (SO): 0-03-00-00587; 1-03-00-00203; 3-03-00-01127; 4-03-00-01298; 5-03
General Comments (NTE): stereoisomers of unknown configuration
CAS Reg. No. (RN): 6205-14-7; 6205-15-8; 6385-10-0; 27750-10-3; 27750-11-4; 56323-59-2; 56323-60-5
Rltd. Stereoisomers (RSI): 1913756; 1913757
Formula Weight (FW): 208.12
Lawson Number (LN): 2284



Field Availability:

Code	Name	Occur. (OCC)
MF	Molecular Formula	1
CN	Chemical Name	2
AUN	Autonom Name	1
FW	Formula Weight	1
SO	Beilstein Citation	5
LN	Lawson Number	1
RN	CAS Registry Number	7
NTE	Notes	1
RSI	Related Stereo Isomers	2
SF	Stereo Family	1
RSTR	Related Structure	5
INP	Isolation from Natural Product	3
PRE	Preparation	7
CPD	Crystal Property Description	2
MP	Melting Point	2
ORP	Optical Rotatory Power	3
CDER	Chemical Derivative	5

=> d 3 pre

L3 ANSWER 3 OF 5 BEILSTEIN COPYRIGHT 1999 BEILSTEIN CD&S

Preparation:
PRE
Reference(s):
1. Ozawa et al., Agric.Biol.Chem., 41 <1977>, 359,365, CODEN: ABCHA6

=> d 5 pre inp

L3 ANSWER 5 OF 5 BEILSTEIN COPYRIGHT 1999 BEILSTEIN CD&S

Preparation:
PRE
Start: BRN=1725828 aconitic acid
Reag: hypochlorous acid
Detail: anschliessend Behandeln des Reaktionsprodukts mit Kalkmilch
Reference(s):
1. Pawolleck, Justus Liebigs Ann. Chem., 178 <1875>, 157, CODEN: JLACBF
Note(s):
2. Handbook Data
PRE

Start: parasaccharate barium
Reag: nitric acid
Temp: 35.0 Cel
Reference(s):
1. Kiliani; Loeffler, Chem.Ber., 37 <1904>, 3614, CODEN: CHBEAM
Note(s):
2. Handbook Data

PRE
Start: BRN=1728465 (+-)-hydroxycitric acid
Reag: cinchonine
Reference(s):
1. Martius; Maue, Hoppe-Seyler's Z.Physiol.Chem., 269<1941>39, CODEN: HSZPAZ
Note(s):
2. Handbook Data
3. (1S,2S)-1,2-dihydroxy-propane-1,2,3-tricarboxylic acid

PRE
Start: BRN=1728465 (+-)-hydroxycitric acid
Reag: cinchonine
Reference(s):
1. Martius; Maue, Hoppe-Seyler's Z.Physiol.Chem., 269<1941>39, CODEN: HSZPAZ
Note(s):
2. Handbook Data
3. (1R,2R)-1,2-dihydroxy-propane-1,2,3-tricarboxylic acid

PRE
Start: BRN=1728465 (+-)-allo-hydroxycitric acid
Reag: cinchonine
Detail: es entsteht das Lacton
Reference(s):
1. Griebel, Z.Unters.Lebensm., 83<1942>482
Note(s):
2. Handbook Data
3. (1R,2S)-1,2-dihydroxy-propane-1,2,3-tricarboxylic acid

PRE
Start: calcium salt of/the/ trans-aconitic acid
Reag: HOCl
ByProd: BRN=1728465 (+-)-allo-hydroxycitric acid
Reference(s):
1. Martius; Maue, Hoppe-Seyler's Z.Physiol.Chem., 269<1941>37, CODEN: HSZPAZ
Note(s):
2. Handbook Data
3. (+-)-hydroxycitric acid

PRE
Start: calcium salt of/the/ trans-aconitic acid
Reag: HOCl
ByProd: BRN=1728465 (+-)-hydroxycitric acid
Reference(s):
1. Martius; Maue, Hoppe-Seyler's Z.Physiol.Chem., 269<1941>37, CODEN: HSZPAZ
Note(s):
2. Handbook Data
3. (+-)-allo-hydroxycitric acid

Isolation from Natural Product:
INP Im Runkelruebensaft
Reference(s):
1. v.Lippmann, Chem.Ber., 16 <1883>, 1078, CODEN: CHBEAM
Note(s):
2. Handbook Data

INP aus Garcinia cambogia
Reference(s):
1. Lewis et al., Methods Enzymol., 13 <1969>, 613,614-619, CODEN: MENZAU
Chem. Abstr., 721970, 89707t

INP aus Hibiscus sabdariffa

Reference(s):
1. Lewis et al., [redacted]ethods Enzymol., 13 <1969>, 613[redacted]4-619, CODEN: MENZAU

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L5 ANSWER 1 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1999:81564 HCAPLUS
DN 130:144169
TI Hydroxycitric acid compositions, pharmaceutical and dietary supplements and food products made therefrom, and methods for their use in reducing body weight
IN Raju, G. Ganga
PA Interhealth Nutraceuticals Incorporated, USA
SO PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9903464	A1	19990128	WO 98-US14481	19980713
	W: JP, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
PRAI	US 97-892414		19970714		

AB Hydroxycitric acid (I) compns. which comprise approx. 14 to 26 % by wt. of calcium, and approx. 24 to 40 % by wt. of potassium or approx. 14 to 24 % by wt. of sodium, or a mixt. thereof, each calcd. as a percentage of the total hydroxycitric acid content of the compn., together with dietary supplements and food products contg. such compns. and methods for utilizing such compns., dietary supplements and food products to reduce body wt. in mammals are disclosed. Exts. from Garcinia fruits reacted with calcium hydroxide to obtain calcium hydroxycitrate which was reacted with phosphoric acid to convert the calcium hydroxycitrate to I (yield 91.6%). I was reacted with calcium hydroxide to obtain calcium salt of I.

IT **213385-58-1P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(pharmaceutical and dietary supplements and food products contg.

hydroxycitric acid for reducing body wt.)

L5 ANSWER 2 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:631428 HCAPLUS
DN 129:265459
TI Process for producing calcium salt of (-)-erythrohydroxycitric acid
IN Sharma, Nina; Parashuraman, Meena; Raman, Girija
PA Lupin Laboratories Ltd., India
SO Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 866137	A1	19980923	EP 97-301777	19970317
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				

AB A process for extn. of hydroxycitric acid as calcium salt from the fruit rind of Garcinia species such as Garcinia cambogia, Garcinia indica and Garcinia atroviridis, which comprises reaction of an aq. suspension of Garcinia rind with a mixt. of pectic enzymes such as polygalacturonase (PG) and pectin lyase (PL), at a temp. of 40.degree. followed by addn. of an alkali such as sodium hydroxide and, from the intermediate alkali metal salt of hydroxycitric acid the corresponding calcium salt is prepd. by addn. of calcium chloride. The calcium salt of (-)-hydroxycitric acid is therapeutically active component.
IT **213385-58-1P**
RL: **PUR (Purification or recovery)**; PREP (Preparation)
(process for producing calcium salt of (-)-erythrohydroxycitric acid)

L5 ANSWER 3 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:268507 HCAPLUS
DN 128:278299
TI Magnesium (-)-hydroxycitrate, method of preparation, applications, and compositions, in particular pharmaceutical, containing same
IN Shrivastava, Ravi; Lambropoulos, Patrick
PA Shrivastava, Ravi, Fr.; Lambropoulos, Patrick
SO PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DT Patent
LA French
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9817671	A1	19980430	WO 97-FR1860	19971017
	W: AU, CA, JP, KR, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	FR 2754820	A1	19980424	FR 96-13094	19961022
	AU 9748717	A1	19980515	AU 97-48717	19971017
PRAI	FR 96-13094	19961022			
	WO 97-FR1860	19971017			

AB The invention concerns magnesium (-)-hydroxycitrate, its method of prepn., its applications in dietetics and in therapeutics particularly in the cardiovascular field, and pharmaceutical compns. contg. it. Thus, magnesium (-)-hydroxycitrate is prepd. from reaction of an ext. of Garcinia cambogia with an aliph. alc. (e.g., EtOH) to obtain a ppt. which is treated with a tannin fixative (e.g., poly(vinylpyrrolidone)), filtered, and the remaining soln. agitated with an anion exchange resin,

the supernatant is eliminated, and the product is eluted and dried. Magnesium (-)-hydroxycitrate is useful in the therapeutic treatment of cardiovascular diseases. The antioxidant and antihypertensive activities of the (-)-hydroxycitrate in rat, its antihypercholesterolemic and antiatherosclerotic activities in rabbit, and the toxicity in rat are reported. An assocn. of magnesium (-)-hydroxycitrate with Mg, Cu, Co, Zn, Ni, Se, Si, Mn, Li, or Fe, ionized or not, and at least one vitamin is claimed. Pharmaceutical formulations contg. magnesium (-)-hydroxycitrate are claimed (6 examples). Magnesium (-)-hydroxycitrate or an assocd. compd. described above are applicable to dietetic/nutritional or cosmetic products.

IT **132436-67-0P**
RL: BAC (Biological activity or effector, except adverse); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. of magnesium (-)-hydroxycitrate for treatment of cardiovascular diseases)

L5 ANSWER 4 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1997:41983 HCAPLUS
DN 126:65382
TI A new process for the production of potassium hydroxy citric acid, and compositions containing the potassium hydroxy citric acid
IN Majeed, Muhammed; Badmaev, Vladimir; Rajendran, R.
PA Sabinsa Corporation, USA; Majeed, Muhammed; Badmaev, Vladimir; Rajendran, R.
SO PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9636585	A1	19961121	WO 96-US6554	19960515
	W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI				
	RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN				
	AU 9657360	A1	19961129	AU 96-57360	19960515
	US 5783603	A	19980721	US 97-829143	19970331
PRAI	US 95-440968		19950515		
	WO 96-US6554		19960515		

AB The present invention provides new processes for the synthesis or isolation of hydroxycitric acid in the form of a potassium salt from Garcinia fruit. The present invention also provides compns. contg. the potassium hydroxy citrate for use a s appetite suppressants.

IT **185196-38-7P**
RL: BMF (Bioindustrial manufacture); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(prepn. of potassium hydroxycitrate from Garcinia fruit)

L5 ANSWER 5 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1996:483470 HCAPLUS
DN 125:195106
TI ATP-Citrate Lyase as a Target for Hypolipidemic Intervention. Design and Synthesis of 2-Substituted Butane-1,4-dioic Acids as Novel, Potent

Inhibitors of the Enzyme

AU Gribble, Andrew D.; Dolle, Roland E.; Shaw, Antony; McNair, David; Novelli, Riccardo; Novelli, Christine E.; Slingsby, Brian P.; Shah, Virendra P.; Tew, David; et al.

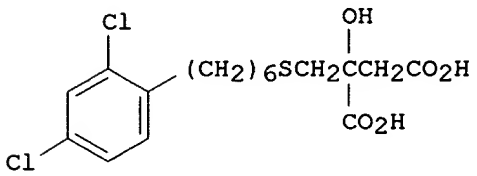
CS Departments of Medicinal Chemistry, SmithKline Beecham Pharmaceuticals Ltd, The Frythe/Welwyn/Hertfordshire, AL6 9AR, UK

SO J. Med. Chem. (1996), 39(18), 3569-3584
CODEN: JMCMAR; ISSN: 0022-2623

DT Journal

LA English

GI



I

AB ATP-citrate lyase is the primary enzyme responsible for the synthesis of cytosolic acetyl-CoA in many tissues. Inhibitors of the enzyme represent a potentially novel class of hypolipidemic agent, which are anticipated to have combined hypocholesterolemic and hypotriglyceridemic properties. A series of 2-substituted butane-1,4-dioic acids have been designed and synthesized as inhibitors of the enzyme. The best compds. have reversible Ki's in the 1-3 .mu..MU. range against the isolated rat enzyme. As representative of this compd. class, I has been shown to exert its inhibitory action through a mainly competitive mechanism with respect to citrate and a noncompetitive one with respect to CoA. None of the inhibitors were able to inhibit cholesterol and/or fatty acid synthesis in HepG2 cells. This has been attributed to the adverse physicochem. properties of the mols. leading to a lack of cell penetration. Despite this, a lead structural class of compd. has been identified with the potential for modification into potent, cell-penetrant, and efficacious inhibitors of ATP-citrate lyase.

IT **27750-10-3P**
RL: BAC (Biological activity or effector, except adverse); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(prepn. of butane-1,4-dioic acids as inhibitors of the enzyme ATP-citrate lyase)

L5 ANSWER 6 OF 14 HCAPLUS COPYRIGHT 1999 ACS

AN 1996:328556 HCAPLUS

DN 125:9152

TI Hydroxycitric acid concentrate and method of making

IN Moffett, Scott Alexander; Bhandari, Ashok Kumar; Ravindranath, Bhagavathula

PA Renaissance Herbs, Inc., USA; Vittal Mallya Scientific Research Foundation

SO PCT Int. Appl., 20 pp.
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI	WO 9605741	A1	19960229	WO 95-US10707	19950822
	W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT				
	RW: KE, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	US 5536516	A	19960716	US 94-295281	19940824
	CA 2198376	AA	19960229	CA 95-2198376	19950822
	AU 9534129	A1	19960314	AU 95-34129	19950822
	EP 782399	A1	19970709	EP 95-930918	19950822
	R: DE, FR, GB, IT				
	CN 1162910	A	19971022	CN 95-195577	19950822
	BR 9508766	A	19971111	BR 95-8766	19950822
	JP 10504826	T2	19980512	JP 95-508284	19950822
	US 5656314	A	19970812	US 96-633921	19960417
PRAI	US 94-295281	19940824			
	WO 95-US10707	19950822			

AB A hydroxycitric acid conc. prepd. from Garcinia rind including 23 to 54% by wt. free hydroxycitric acid, 6 to 20% by wt. lactone of hydroxycitric acid, 0.001 to 8% by wt. citric acid, and 32 to 70% by wt. water has been claimed, wherein the free hydroxycitric acid, the lactone of hydroxycitric acid and the citric acid constitute 94 to 99% by wt. of total solutes dissolved in the water. Also disclosed is a method of prepg. such a conc. from Garcinia rind, as well as food products contg. hydroxycitric acid.

IT **27750-10-3P**, Hydroxycitric acid
RL: BAC (Biological activity or effector, except adverse); FFD (Food or feed use); **PUR (Purification or recovery)**; BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. of hydroxycitric acid conc.)

L5 ANSWER 7 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1996:43524 HCAPLUS
DN 124:97375
TI (-)-Hydroxycitric acid from Garcinia cambogia.
AU Singh, R.P.; Jayaprakasha, G.K.; Sakariah, K.K.
CS Manpower Development, Central Food Technological Research Institute, Mysore, 570 013, India
SO Biol. Mem. (1995), Volume Date 1995, 21(1), 27-33
CODEN: BMEMDK; ISSN: 0379-8097
DT Journal
LA English
AB Crystals of (-)-hydroxycitric acid were prepd. from water ext. of G. cambogia by pptn. as calcium or barium salt and desalting on cation exchange resin. Water was removed by distn. with immiscible solvent, followed by recrystn. of (-)-hydroxycitric acid lactone in ether. Purity of the prepn. was confirmed by spectroscopic and chem. studies.
IT **27750-10-3P**, (-)-Hydroxycitric acid
RL: **PUR (Purification or recovery)**; THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(Garcinia cambogia.)

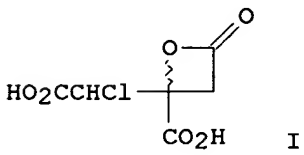
L5 ANSWER 8 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1983:452977 HCAPLUS
DN 99:52977
TI Apparent stability constants of magnesium and calcium complexes of tricarboxylates

AU Gabriel, Jerome L.; Aogaichi, Tadashi; Dearolf, Charles R.; Plaut, Gerhard W. E.
CS Sch. Med., Temple Univ., Philadelphia, PA, 19140, USA
SO Anal. Lett. (1983), 16(A2), 113-27
CODEN: ANALBP; ISSN: 0003-2719
DT Journal
LA English
AB The trisodium salt of o-(1,8-dihydroxy-3,6-disulfo-2-naphthylazo)benzenearsonic acid was used as metallochromic indicator for the spectrophotometric detn. of apparent stability consts. of Mg and Ca complexes of tricarboxylates and ADP (pH 7.4-8.0). The tricarboxylate studied were citrate, O-Me citrate, DL-erythro-fluorocitrate, DL-threo-isocitrate, DL-threo-.alpha.-methylisocitrate, DL-erythro-.alpha.-methylisocitrate, DL-threo-homoisocitrate, tricarballylate, 3-hydroxyglutarate, garciniate, and hibiscusate.
IT **56323-59-2DP**, complexes with magnesium and calcium
56323-60-5DP, complexes with magnesium and calcium
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and stability const. of)

L5 ANSWER 9 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1983:438304 HCAPLUS
DN 99:38304
TI Chlorocitric acids
IN Guthrie, Robert W.; Kierstead, Richard W.; Mennona, Francis A.; Sullivan, Ann C.
PA Hoffmann-La Roche, Inc., USA
SO U.S., 23 pp. Cont.-in-part of U.S. 4,312,885.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 4365070	A	19821221	US 81-312041	19811016
	US 4312885	A	19820126	US 78-973504	19781226
	ZA 7906685	A	19801126	ZA 79-6685	19791210
	AT 3851	E	19830715	AT 79-105314	19791221
	US 4352758	A	19821005	US 81-290988	19810807
	US 4443619	A	19840417	US 81-290989	19810807
	US 4340754	A	19820720	US 81-304282	19810921
	US 4354039	A	19821012	US 81-304407	19810921
PRAI	US 78-973504	19781226			
	CH 79-10580	19791128			
	EP 79-105314	19791221			

GI



I

AB Isomeric lactones I were prepd. Thus, tri-Na trans-aconitate was treated with Cl2 to give (.+-.)-threo-I which was resolved with brucine. At 69

mg/kg orally in rats (+)-threo-I depressed food intake to 35% of controls.

IT **27750-10-3P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and appetite depressant activity of)

L5 ANSWER 10 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1982:30421 HCAPLUS
DN 96:30421
TI Hydroxycitrate
AU Lowenstein, John M.; Brunengraber, Henri
CS Dep. Biochem., Brandeis Univ., Waltham, MA, 02254, USA
SO Methods Enzymol. (1981), 72(Lipids, Part D), 486-97
CODEN: MENZAU; ISSN: 0076-6879
DT Journal; General Review
LA English
AB A review with 29 refs. on the properties of hydroxycitrate, a competitive inhibitor of ATP-citrate lyase, and its effects on fatty acid and .beta.-hydroxysterol synthesis and on ketogenesis.
IT **6205-14-7P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(stereoisomers of, prepn. and properties of, lipid metab. in relation to)

L5 ANSWER 11 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1982:29110 HCAPLUS
DN 96:29110
TI Origin of acetyl groups of acetylcholine in the brain and the role of acetylcoenzyme A in the control of its synthesis
AU Tucek, Stanislav; Dolezal, V.; Ricny, J.
CS Inst. Physiol., Czech. Acad. Sci., Prague, 14220, Czech.
SO Adv. Behav. Biol. (1981), 25(Cholinergic Mech.), 415-24
CODEN: ADBBBW; ISSN: 0099-6246
DT Journal
LA English
AB Slices of rat caudate nuclei synthesized acetylcholine [51-84-3] from the following substrates in order of preference: pyruvate [127-17-3] >glucose [50-99-7] > acetylcarnitine [3040-38-8] > citrate [77-92-9] > acetate [64-19-7]. (-)-hydroxycitrate [27750-10-3] Decreased the utilization of pyruvate and glucose for acetylcholine synthesis by only 25-33%, indicating that ATP citrate-lyase [9027-95-6] was responsible for the supply of only 25-33% of the acetyl CoA [72-89-9] used for the synthesis of acetylcholine from pyruvate or glucose. A direct correlation was obsd. between tissue levels of acetyl CoA and acetylcholine, and in expts. with 30 mM K+, also between the level of acetyl CoA in the tissue and the amt. of acetylcholine released into the medium in expts in which caudate nuclei slices were incubated in the presence of varying concns. of glucose. Acetyl CoA and acetylcholine levels were also directly related in slices that were incubated in the presence of metabolic inhibitors. Apparently, the reaction of acetylcholine synthesis is close to equil. in cholinergic neurons and the level of acetylcholine in the compartment of its synthesis depends on the supply of both substrates and the removal of both products of the reaction catalyzed by choline acetyltransferase.
IT **27750-10-3P**
RL: PREP (Preparation)
(acetylcholine formation from glucose and pyruvate inhibition by)

L5 ANSWER 12 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1976:401332 HCAPLUS
DN 85:1332

TI Transfer of acetyl-units through the mitochondrial membrane: evidence for a pathway different from the citrate pathway
AU Walter, Ulrich; Soeling, Hans D.
CS Abt. Klin. Biochem., Med. Universitaetsklin., Goettingen, Ger.
SO FEBS Lett. (1976), 63(2), 260-6
CODEN: FEBLAL
DT Journal
LA English
AB The existence of a metabolic path transporting Ac groups across the mitochondrial membrane, which differs from the citrate system, was investigated. In citrate synthesis from 3H- and 14C-labeled acetyl-CoA catalyzed by citrate synthase, 22% of 3H was lost; however, no 3H was lost during transfer of radioactivity from 3H- and 14C-labeled citrate into the Ac group of 4-acetamidoantipyrine (I) by the citrate-cleaving enzyme + arylamine transacetylase. The high loss of 3H during conversion of radioactive-labeled L-alanine into the I Ac group in liver mitochondria + supernatant is probably due to H exchange during alanine transamination. The 3H loss from labeled L-lactate during conversion into the Ac group of I was also larger than that due to the citrate synthase reaction. (-)-Hydroxycitrate under all conditions increased the 3H sp. radioactivity in I by .apprx.15-20%. Further, hydroxycitrate inhibited I formation. When mitochondria were incubated with supernatant in the presence of labeled lactate, an inhibitor of pyruvate kinase, and in the absence of K+, 3H loss during the conversion of lactate into the I Ac group was reduced and the sp. radioactivity of I rose in the presence of hydroxycitrate by .apprx.20% Ac group transfer across the mitochondria may occur via AcO-, acetylcarnitine, or acetyl-CoA.
IT **27750-10-3P**
RL: PREP (Preparation)
(acetamidoantipyrine formation from alanine or lactate by liver mitochondria supernatant inhibition of)

L5 ANSWER 13 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1970:89707 HCAPLUS
DN 72:89707
TI Isolation and properties of hydroxycitric acid
AU Lewis, Yohan Srimanth
CS Cent. Food Technol. Res. Inst., Mysore, India
SO Methods Enzymol. (1969), 13, 613-19
CODEN: MENZAU
DT Journal
LA English
AB Hydroxycitric acid (1,2-dihydroxypropane-1,2,3-tricarboxylic acid)can exist as 4 isomers. The acid as a lactone is isolated from the dried fruit rinds of Garcinia cambogia by formation of the K+ salt or by extn. with acetone. An isomer is extd. from the calyxes of Hibiscus sabdariffa by acetone extn. The lactones and acids are hygroscopic, and sol. in water and alc. The melting point of one lactone is 183.degree., that of another 178.degree..
IT **27750-10-3P 27750-11-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

L5 ANSWER 14 OF 14 HCAPLUS COPYRIGHT 1999 ACS
AN 1967:469394 HCAPLUS
DN 67:69394
TI Action of chemical species generated from water radiolysis on carbon-carbon double bonds
AU Le Roux, Yvonne; Noyer, Helene; Nofre, Claude

CS Div. Chim. Pharmacol. Centre Rech. Serv. Santa Armees, Lyon, Fr.
SO Bull. Soc. Chim. Fr. (1967), (6), 2003-11
CODEN: BSCFAS
DT Journal
LA French
AB Aq. solns. of maleic acid-2,3-14C (I), a mixt. of fumaric acid (II) and II-1,4-14C,14C-labeled aconitic acid (III), cyclohexene (IV), and 1-methylcyclohexene (V) were irradiated (.gamma.-rays, 60Co), and the effect of dissolved O, pH, and rate of irradn. on the products obtained was studied. Citric acid-1,5-14C (210 mg.) in 0.2 ml. H2O is treated at 140.degree. with 0.1 ml. H2SO4 (d. 1.83) to give III contg. 89.5% cis isomer and 10.5% trans isomer. Similarly prepd. is IV-1-14C. Irradn. of II gives, in the absence of O, maleic acid, succinic acid, dihydroxymaleic acid, and CH2(CO2H)2; Meso-tartaric acid, tartaric acid, and tartronic acid are obtained in the presence of O. I behaves in a similar manner. Citric acid, isocitric acid (VI), tricarballylic acid, and hydroxycitric acid are obtained from III; 81% citric acid and 19% VI are obtained at pH .apprx.3 in the absence of O, and hydration is predominant in the absence of O. IV gives trans-1,2-cyclohexanediol (VII) at an irradn. rate of 7 .times. 103 rads/min.; a rate of 8.5 .times. 102 rads/min. gives a mixt. contg. 8.4% cis-VII. 1-Methyl-1,2-cyclohexanediols are obtained from V in the absence and presence of O. The Fenton reaction (Fe++ + H2O2 .fwdarw..cntdot.OH) of the olefins was studied; I and II-1,4-14C give malic, meso-tartaric, and tartaric acids; IV gives results which are similar to those obtained from .gamma.-irradn. yielding a mixt. of 94% trans-VII and 6% cis-VII, and V gives only the trans isomer. 61 references.
IT **6205-14-7P**
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in radiolysis of aq. cyclohexene)

1 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

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L52 ANSWER 1 OF 5 HCAOLD COPYRIGHT 1999 ACS
AN CA65:11114e CAOLD
IT 14525-40-7 **14534-36-2** **14534-37-3** **14534-38-4**
14713-65-6

L52 ANSWER 2 OF 5 HCAOLD COPYRIGHT 1999 ACS
AN CA65:9373a CAOLD
IT **6205-14-7** 88929-19-5

L52 ANSWER 3 OF 5 HCAOLD COPYRIGHT 1999 ACS
AN CA65:9372h CAOLD
IT 6204-94-0 **6385-10-0**

L52 ANSWER 4 OF 5 HCAOLD COPYRIGHT 1999 ACS
AN CA63:16775g CAOLD
IT **4373-35-7** **6205-14-7**

L52 ANSWER 5 OF 5 HCAOLD COPYRIGHT 1999 ACS
AN CA60:13800b CAOLD
IT **6205-14-7** 88929-19-5

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L48 ANSWER 1 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1999:81564 HCAPLUS
DN 130:144169
TI Hydroxycitric acid compositions, pharmaceutical and dietary supplements

and food products made therefrom, and methods for their use in reducing body weight
IN Raju, G. Ganga
PA Interhealth Nutraceuticals Incorporated, USA
SO PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9903464	A1	19990128	WO 98-US14481	19980713

W: JP, US
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
PRAI US 97-892414 19970714
AB Hydroxycitric acid (I) compns. which comprise approx. 14 to 26 % by wt. of calcium, and approx. 24 to 40 % by wt. of potassium or approx. 14 to 24 % by wt. of sodium, or a mixt. thereof, each calcd. as a percentage of the total hydroxycitric acid content of the compn., together with dietary supplements and food products contg. such compns. and methods for utilizing such compns., dietary supplements and food products to reduce body wt. in mammals are disclosed. Exts. from **Garcinia** fruits reacted with calcium hydroxide to obtain calcium hydroxycitrate which was reacted with phosphoric acid to convert the calcium hydroxycitrate to I (yield 91.6%). I was reacted with calcium hydroxide to obtain calcium salt of I.
IT **Garcinia**
(fruits exts.; pharmaceutical and dietary supplements and food products contg. hydroxycitric acid for reducing body wt.)
IT **213385-58-1P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(pharmaceutical and dietary supplements and food products contg. hydroxycitric acid for reducing body wt.)
IT **213385-58-1P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(pharmaceutical and dietary supplements and food products contg. hydroxycitric acid for reducing body wt.)

L48 ANSWER 2 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1999:21879 HCAPLUS
DN 130:119603
TI **Hydroxycitric** acid and other organic acids as antiobesity drugs
IN Ookubo, Tadanaga
PA Nichiyaku K. K., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 11001431	A2	19990106	JP 97-152051	19970610

AB **Hydroxycitric** acid, org. acids (including malic acid and citric acid), and **Garcinia** cambogia **ext.** contg. **hydroxycitrate** are claimed as antiobesity drugs. The antiobesity effect was tested in rats.
ST antiobesity **Garcinia ext hydroxycitrate** org acid

IT Antiobesity agents
Garcinia cambogia
(**hydroxycitric** acid and other org. acids as antiobesity drugs)
IT Organic acids
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**hydroxycitric** acid and other org. acids as antiobesity drugs)
IT 77-92-9, Citric acid, biological studies 6915-15-7, Malic acid
27750-10-3, Hydroxycitric acid
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**hydroxycitric** acid and other org. acids as antiobesity drugs)
IT **27750-10-3, Hydroxycitric** acid
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**hydroxycitric** acid and other org. acids as antiobesity drugs)

L48 ANSWER 3 OF 52 HCAPLUS COPYRIGHT 1999 ACS DUPLICATE 1
AN 1998:649982 HCAPLUS
DN 129:281002
TI Nutritional supplement for increased muscle size and strength for body builders
IN Gardiner, Paul T.
PA Can.
SO U.S., 9 pp.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5817329	A	19981006	US 97-806124	19970228

AB The present invention relates to the method and compn. for use of diet supplements by athletes and bodybuilders. A first supplement comprises, the amino acid acetyl-L-carnitine, in conjunction with a series of nutritionally essential branched-chain amino acids, zinc, ornithine .alpha.-ketoglutarate, taurine, in conjunction with two other independently administered supplements; a fat burning agent and a creatine synthesizer. A second diet supplement dosage administered before each meal comprises **hydroxycitric** acid, ephedra, caffeine, salicin, L-carnitine, and Cr picolinate. A third diet supplement dosage administered before each meal comprises creatine monohydrate and amino acids comprising L-methionine, L-arginine, and L-glycine.
IT Willow (Salix)
(bark, **exts.**; nutritional supplement for increased muscle size and strength for body builders)
IT Ephedra sinica
Garcinia cambogia
Guarana (Paullinia cupana)
(**exts.**; nutritional supplement for increased muscle size and strength for body builders)
IT 56-40-6, Glycine, biological studies 56-85-9, L-Glutamine, biological studies 58-08-2, Caffeine;, biological studies 61-90-5, L-Leucine, biological studies 63-68-3, L-Methionine, biological studies 72-18-4, L-Valine, biological studies 73-32-5, L-Isoleucine, biological studies

74-79-3, L-Arginine, biological studies 107-35-7, Taurine 138-52-3, Salicin 541-15-1, L-Carnitine 3040-38-8, Acetyl-L-carnitine 6020-87-7, Creatine monohydrate 7440-66-6, Zinc, biological studies **27750-10-3**, **Hydroxycitric** acid 27882-76-4 34414-83-0, Ornithine .alpha.-ketoglutarate
RL: FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(nutritional supplement for increased muscle size and strength for body builders)

IT **27750-10-3**, **Hydroxycitric** acid
RL: FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(nutritional supplement for increased muscle size and strength for body builders)

L48 ANSWER 4 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1999:7837 HCAPLUS
DN 130:71524
TI Weight control composition comprising Hypericum perforatum
IN Braswell, A. Glenn; Ahmed, Aftab J.
PA USA
SO PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9856397	A1	19981217	WO 98-US12273	19980612
W: JP				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
PRAI US 97-874033		19970612		

AB A method of controlling wt. in mammals by orally administering to the mammal an amt. of a pharmaceutical compn. contg. Hypericum perforatum or active components thereof effective to control the wt. of the mammal is described. The pharmaceutical compn. also preferably further contains at least one thermogenic agent and at least one agent inhibiting lipogenesis. The at least one thermogenic agent includes one or more of N-acetyl-L-carnitine, cayenne **ext.**, inositol hexanicotinate, niacin or salicin. The at least one agent inhibiting lipogenesis may be **hydroxy citric** acid. When the pharmaceutical compn. includes H. perforatum, at least one thermogenic agent and at least one agent inhibiting lipogenesis, the compn. acts to control the wt. of the mammal by simultaneously suppressing appetite, inducing thermogenesis and inhibiting lipogenesis (no data).

IT Capsicum annuum annuum
(longum group, **ext.**; wt. control compn. comprising Hypericum)

IT Appetite depressants
Body weight
Capsules (drug delivery systems)
Garcinia cambogia
St.-John's-wort (Hypericum perforatum)
Tablets (drug delivery systems)
(wt. control compn. comprising Hypericum)

IT 50-67-9, 5-Hydroxy tryptamine, biological studies 54-47-7, Pyridoxyl phosphate 59-67-6, Niacin, biological studies 60-18-4, L-Tyrosine, biological studies 63-91-2, L-Phenylalanine, biological studies 73-22-3, Tryptophan, biological studies 138-52-3, Salicin. 471-34-1,

Calcium carbonate, biological studies 548-04-9, Hypericin 1309-48-4, Magnesium oxide, biological studies 6556-11-2, Inositol hexanicotinate **27750-10-3**, **Hydroxy citric** acid 55954-61-5, Pseudohypericin
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(wt. control compn. comprising Hypericum)

IT **27750-10-3**, **Hydroxy citric** acid
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(wt. control compn. comprising Hypericum)

L48 ANSWER 5 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:564287 HCAPLUS
DN 129:188716
TI Athletic endurance increasing agent in food
IN Fushiki, Tohru; Ishihara, Kengo; Anno, Takahiko; Tomi, Hironori
PA Nippon Shinyaku Co., Ltd., Japan
SO PCT Int. Appl., 18 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9835664	A1	19980820	WO 98-JP533	19980209

W: CA, CN, JP, KR, RU, US, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
PRAI JP 97-28914 19970213

AB A new use of a **hydroxycitric** acid and derivs. thereof; and a new method of utilizing a **Garcinia** pericarp **ext.** contg. any of the **hydroxycitric** acid and derivs. were given. The athletic endurance reinforcing agent is characterized by contg. as the active ingredient (-)-**hydroxycitric** acid, its lactone, or a salt of either.

ST **hydroxycitrate** lactone athletic endurance food; **Garcinia** pericarp **ext hydroxycitrate**

IT **Garcinia**
Garcinia atroviridis
Garcinia cambogia
Garcinia indica
(pericarp **ext.**; athletic endurance increasing agent in food)

IT **27750-10-3**, (-)-**Hydroxycitric** acid **27750-10-3D**, (-)-**Hydroxycitric** acid, lactone **27750-10-3D**, (-)-**Hydroxycitric** acid, potassium salt **27750-10-3D**, (-)-**Hydroxycitric** acid, sodium salt **27750-10-3D**, (-)-**Hydroxycitric** acid, water-sol. salt
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(athletic endurance increasing agent in food)

IT **27750-10-3**, (-)-**Hydroxycitric** acid **27750-10-3D**, (-)-**Hydroxycitric** acid, lactone **27750-10-3D**, (-)-**Hydroxycitric** acid, potassium salt **27750-10-3D**, (-)-**Hydroxycitric** acid, sodium salt **27750-10-3D**, (-)-**Hydroxycitric** acid, water-sol. salt
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(athletic endurance increasing agent in food)

L48 ANSWER 6 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:268507 HCAPLUS
DN 128:278299
TI Magnesium (-)-hydroxycitrate, method of preparation, applications, and compositions, in particular pharmaceutical, containing same
IN Shrivastava, Ravi; Lambropoulos, Patrick
PA Shrivastava, Ravi, Fr.; Lambropoulos, Patrick
SO PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DT Patent
LA French
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9817671	A1	19980430	WO 97-FR1860	19971017
	W: AU, CA, JP, KR, US				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	FR 2754820	A1	19980424	FR 96-13094	19961022
	AU 9748717	A1	19980515	AU 97-48717	19971017
PRAI	FR 96-13094	19961022			
	WO 97-FR1860	19971017			

AB The invention concerns magnesium (-)-hydroxycitrate, its method of prepn., its applications in dietetics and in therapeutics particularly in the cardiovascular field, and pharmaceutical compns. contg. it. Thus, magnesium (-)-hydroxycitrate is prepd. from reaction of an ext. of **Garcinia** cambogia with an aliph. alc. (e.g., EtOH) to obtain a ppt. which is treated with a tannin fixative (e.g., poly(vinylpyrrolidone)), filtered, and the remaining soln. agitated with an anion exchange resin, the supernatant is eliminated, and the product is eluted and dried. Magnesium (-)-hydroxycitrate is useful in the therapeutic treatment of cardiovascular diseases. The antioxidant and antihypertensive activities of the (-)-hydroxycitrate in rat, its antihypercholesterolemic and antiatherosclerotic activities in rabbit, and the toxicity in rat are reported. An assocn. of magnesium (-)-hydroxycitrate with Mg, Cu, Co, Zn, Ni, Se, Si, Mn, Li, or Fe, ionized or not, and at least one vitamin is claimed. Pharmaceutical formulations contg. magnesium (-)-hydroxycitrate are claimed (6 examples). Magnesium (-)-hydroxycitrate or an assocd. compd. described above are applicable to dietetic/nutritional or cosmetic products.

ST magnesium hydroxycitrate prepn treatment cardiovascular disease; antiatherosclerotic magnesium hydroxycitrate; antihypertensive magnesium hydroxycitrate; antioxidant magnesium hydroxycitrate; anticholesteremic magnesium hydroxycitrate; **Garcinia** cambogia ext magnesium hydroxycitrate prepn

IT **Garcinia** cambogia
(prepn. of magnesium (-)-hydroxycitrate from ext. of **Garcinia** cambogia for treatment of cardiovascular diseases)

IT 64-17-5, Ethanol, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(for extn. of (-)-hydroxycitrate from ext. of **Garcinia** cambogia to prep. magnesium salt)

IT **132436-67-0P**
RL: BAC (Biological activity or effector, except adverse); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. of magnesium (-)-hydroxycitrate for treatment of cardiovascular diseases)

IT **132436-67-0P**
RL: BAC (Biological activity or effector, except adverse); SPN (Synthetic

preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prepn. of magnesium (-)-hydroxycitrate for treatment of cardiovascular diseases)

L48 ANSWER 7 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:650408 HCAPLUS
DN 129:321142
TI Obesity preventive agents containing **extracts** of **Garcinia** cambogia and mulberry tree
IN Mizusaki, Shigenarobu; Hashimoto, Katsuji; Sudo, Shigeo; Hasegawa, Makoto
PA toyotama Kenko Shokuhin K. K., Japan; Olto Corporation K. K.
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 10265397	A2	19981006	JP 97-71491	19970325

AB Obesity-prevention agents comprise combination of (-)-**hydroxycitric** acid-contg. **Garcinia** cambogia pericarp **exts**. and 1-deoxynojirimycin-contg. mulberry leaf **exts**. Dried leaves of mulberry tree were **extd**. with water while heating and the obtained **exts**. were treated with ethanol. After removal of the ppts. by centrifugation, the **exts**. were concd. and freeze dried. The above **exts**. and G. cambogia **exts**. contg. 50 % (-)-**hydroxycitric** acid were blended with a feed and its anti-obesity effects were tested with mice.
ST obesity prevention **Garcinia** Mulberry **ext**
IT Mulberry
(leaves, **exts**.; obesity preventive agents contg. **exts**. of **Garcinia** cambogia and mulberry tree)
IT Antiobesity agents
(obesity preventive agents contg. **exts**. of **Garcinia** cambogia and mulberry tree)
IT **Garcinia** cambogia
(pericarp, **exts**.; obesity preventive agents contg. **exts**. of **Garcinia** cambogia and mulberry tree)
IT **27750-10-3**, (-)-**Hydroxycitric** acid
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(in **Garcinia** cambogia pericarp **exts**.; obesity preventive agents contg. **exts**. of **Garcinia** cambogia and mulberry tree)
IT 19130-96-2, 1-Deoxynojirimycin
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(in mulberry leaf **exts**.; obesity preventive agents contg. **exts**. of **Garcinia** cambogia and mulberry tree)
IT **27750-10-3**, (-)-**Hydroxycitric** acid
RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(in **Garcinia** cambogia pericarp **exts**.; obesity preventive agents contg. **exts**. of **Garcinia** cambogia and mulberry tree)

L48 ANSWER 8 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:650628 HCAPLUS

DN 129:330033
TI Calcium compositions containing **hydroxycitrates** and malates, calcium supplements, and calcium-enriched foods
IN Kobayashi, Tadashi; Okano, Toshio; Ishizaki, Toshiyuki; Ushirosako, Akira; Kimizuka, Nobuo; Morita, Hideo
PA Takara Shuzo Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10262610	A2	19981006	JP 97-88647	19970325

AB Ca supplements or Ca-enriched foods contain sol. compns. contg. Ca sources, **hydroxycitric** acid sources, and malic acid sources. The compns. show improved soly. and absorbability. **Garcinia ext.**, malic acid, and CaCO3 were dissolved into H2O to give a Ca compn., which showed good soly. in H2O and an artificial digestive juice and effective Ca uptake by femur bone.
ST calcium compn **hydroxycitrate** malate soly absorption; **Garcinia ext** calcium compn malate
IT Confectionery
Health beverages
Health food
Pasta
(Ca compns. contg. **hydroxycitrate** and malate for Ca supplements or Ca-enriched foods)
IT **Garcinia**
(**exts.**; Ca compns. contg. **hydroxycitrate** and malate for Ca supplements or Ca-enriched foods)
IT 471-34-1, Calcium carbonate, biological studies 7440-70-2, Calcium, biological studies 10043-52-4, Calcium chloride, biological studies
RL: BPR (Biological process); FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(Ca compns. contg. **hydroxycitrate** and malate for Ca supplements or Ca-enriched foods)
IT 676-46-0, Sodium malate **6205-14-7, Hydroxycitric** acid 6915-15-7, Malic acid 17482-42-7, Calcium malate **27750-10-3**
RL: FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Ca compns. contg. **hydroxycitrate** and malate for Ca supplements or Ca-enriched foods)
IT **6205-14-7, Hydroxycitric** acid **27750-10-3**
RL: FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Ca compns. contg. **hydroxycitrate** and malate for Ca supplements or Ca-enriched foods)

L48 ANSWER 9 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:38533 HCAPLUS
DN 128:114299
TI Diet beverages containing **hydroxycitric** acid and carbon dioxide gas
IN Tomi, Hirotaka; Tamura, Koichi
PA Nippon Shinyaku Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent

LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 10004939	A2	19980113	JP 96-167746	19960627

AB Title beverages show satiating effect and are useful for body wt. decrease. **Hydroxycitric** acid (I) in the beverages is stabilized by CO2 gas. A beverage contg. 1.0 wt.% **Garcinia** cambogia **ext.** (contg. 50 wt.% I) and CO2 gas was manufd.
ST diet beverage **hydroxycitrate** carbon dioxide
IT Beverages
(diet beverages contg. **hydroxycitric** acid and CO2 gas)
IT **Garcinia** atroviridis
Garcinia cambogia
Garcinia indica
(**hydroxycitrate** from; diet beverages contg. **hydroxycitric** acid and CO2 gas)
IT **27750-10-3, Hydroxycitric** acid
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(diet beverages contg. **hydroxycitric** acid and CO2 gas)
IT 124-38-9, Carbon dioxide, biological studies
RL: FFD (Food or feed use); MOA (Modifier or additive use); BIOL (Biological study); USES (Uses)
(diet beverages contg. **hydroxycitric** acid and CO2 gas)
IT **27750-10-3, Hydroxycitric** acid
RL: FFD (Food or feed use); BIOL (Biological study); USES (Uses)
(diet beverages contg. **hydroxycitric** acid and CO2 gas)

L48 ANSWER 10 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:631428 HCAPLUS
DN 129:265459
TI Process for producing calcium salt of (-)-erythrohydroxycitric acid
IN Sharma, Nina; Parashuraman, Meena; Raman, Girija
PA Lupin Laboratories Ltd., India
SO Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 866137	A1	19980923	EP 97-301777	19970317

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI

AB A process for extn. of hydroxycitric acid as calcium salt from the fruit rind of **Garcinia** species such as **Garcinia** cambogia, **Garcinia** indica and **Garcinia** atroviridis, which comprises reaction of an aq. suspension of **Garcinia** rind with a mixt. of pectic enzymes such as polygalacturonase (PG) and pectin lyase (PL), at a temp. of 40.degree. followed by addn. of an alkali such as sodium hydroxide and, from the intermediate alkali metal salt of hydroxycitric acid the corresponding calcium salt is prepd. by addn. of calcium chloride. The calcium salt of (-)-hydroxycitric acid is therapeutically active component.
IT Extraction
Fruit
Garcinia
Garcinia atroviridis
Garcinia cambogia

Garcinia indica
(process for producing calcium salt of (-)-erythrohydroxycitric acid)
IT **213385-58-1P**
RL: PUR (Purification or recovery); PREP (Preparation)
(process for producing calcium salt of (-)-erythrohydroxycitric acid)
IT **213385-58-1P**
RL: PUR (Purification or recovery); PREP (Preparation)
(process for producing calcium salt of (-)-erythrohydroxycitric acid)

L48 ANSWER 11 OF 52 HCAPLUS COPYRIGHT 1999 ACS
AN 1998:314436 HCAPLUS
DN 129:15617
TI Dietary preparation comprising chitosan and other soluble fibers combined with ascorbic acid, organic chromium, vanadium and **Garcinia hydroxycitrate** for lipid absorption lowering and glucide metabolism stabilization
IN Littera, Renato
PA Sirc S.P.A. Natural + Dietetic Foods, Italy
SO Eur. Pat. Appl., 9 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 841011	A1	19980513	EP 97-830530	19971022
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
PRAI IT 96-RM720		19961023		

AB A prepn. based on chitosan and other substances having high fiber content, such as guar flour, is added with an acid, such as ascorbic acid, to increase the effectiveness as fat binding agent and is combined with three proximate principles such as org. chromium, vanadium and **Garcinia hydroxycitrate** so as to synergistically stabilize the carbohydrate and lipid metab.
ST chitosan **hydroxycitrate** nutrient carbohydrate lipid metab; carbohydrate metab fiber ascorbate **hydroxycitrate** mineral; lipid absorption fiber ascorbate **hydroxycitrate** mineral; vanadium ascorbate fiber carbohydrate lipid metab; chromium ascorbate fiber carbohydrate lipid metab; diet reducing fiber ascorbate **hydroxycitrate** mineral
IT Anticholesteremic agents
Antidiabetic agents
Dietary fiber
Garcinia
Therapeutic diet
(dietary prepn. comprising chitosan and other sol. fibers combined with ascorbic acid, org. Cr, V and **Garcinia hydroxycitrate** for lipid absorption lowering and carbohydrate metab. stabilization)
IT Cyamopsis tetragonolobus
(fiber; dietary prepn. comprising chitosan and other sol. fibers combined with ascorbic acid, org. Cr, V and **Garcinia hydroxycitrate** for lipid absorption lowering and carbohydrate metab. stabilization)
IT Diet
(reducing; dietary prepn. comprising chitosan and other sol. fibers combined with ascorbic acid, org. Cr, V and **Garcinia hydroxycitrate** for lipid absorption lowering and carbohydrate metab. stabilization)

IT 50-81-7, Ascorbic acid, biological studies 1314-62-1, Vanadium pentoxide, biological studies 7100-07-4, Iron lactate 7440-47-3D, Chromium, org. compds. 7440-62-2, Vanadium, biological studies 7733-02-0, Zinc sulfate 9012-76-4, Chitosan **27750-10-3**, **Hydroxycitric** acid
RL: BPR (Biological process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(dietary prepn. comprising chitosan and other sol. fibers combined with ascorbic acid, org. Cr, V and **Garcinia hydroxycitrate** for lipid absorption lowering and carbohydrate metab. stabilization)

IT **27750-10-3**, **Hydroxycitric** acid
RL: BPR (Biological process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(dietary prepn. comprising chitosan and other sol. fibers combined with ascorbic acid, org. Cr, V and **Garcinia hydroxycitrate** for lipid absorption lowering and carbohydrate metab. stabilization)

L48 ANSWER 12 OF 52 USPATFULL
AN 1998:108427 USPATFULL
TI Method of preparing a forskohlin composition from forskohlin extract and use of forskohlin for promoting lean body mass and treating mood disorders
IN Majeed, Muhammed, Piscataway, NJ, United States
Badmaey, Viadimir, Piscataway, NJ, United States
Rajendran, R., Bangalora, India
PA Sabinsa Corporation, Piscataway, NJ, United States (U.S. corporation)
PI US 5804596 19980908
AI US 97-807652 19970227 (8)
DT Utility
EXNAM Primary Examiner: Goldberg, Jerome D.
LREP Nikaido Marmelstein Murray & Oram LLP
CLMN Number of Claims: 8
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 405
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB A method of promoting lean body mass in an individual is disclosed, comprising administering to the individual a lean body mass promoting effective amount of forskohlin. A method of treating a mood disorder is also disclosed, comprising administering to a patient in need thereof a mood disorder treating effective amount of forskohlin. Compositions suitable for promoting lean body mass and/or treating a mood disorder are also disclosed, the composition comprising about 1 to about 40% forskohlin in combination with at least one physiologically acceptable carrier or excipient. A method of preparing a forskohlin composition from a forskohlin extract of Coleus Forskoli plant is further disclosed, as well as a forskohlin composition prepared by the method.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.
SUMM . . . than sugars. Cytokine regulators change the activity of hormone-like cytokines and alter the communication among cells, resulting in weight loss. **Hydroxycitric** acid acts as an inhibitor of enzyme citrate lyase, which subsequently slows down the synthesis of fatty acids and increases. . .
DETD . . . invention, the forskohlin can be administered in combination therapy with additional ingredients. Some examples of additional ingredients are extract from **Garcinia** gambogia in the form of natural (-) **hydroxycitric** acid or its salts (e.g., calcium or potassium salts); organic salts of vanadium (e.g., bis maltolato

vanadium or bis glycinato. . .

L48 ANSWER 13 OF 52 USPATFULL
AN 1998:85974 USPATFULL
TI Potassium **hydroxycitrate** for the suppression of appetite and induction of weight loss
IN Majeed, Muhammed, Piscataway, NJ, United States
Badmaev, Vladimir, Piscataway, NJ, United States
Rajendran, R., Bangalore, India
PA Sabinsa Corporation, Piscataway, NJ, United States (U.S. corporation)
PI US 5783603 19980721
AI US 97-829143 19970331 (8)
RLI Continuation of Ser. No. US 95-440968, filed on 15 May 1995, now abandoned
DT Utility
EXNAM Primary Examiner: Jarvis, William R. A.
LREP Nikaido Marmelstein Murray Oram, LLP
CLMN Number of Claims: 9
ECL Exemplary Claim: 1
DRWN 4 Drawing Figure(s); 4 Drawing Page(s)
LN.CNT 685
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention provides methods of suppressing appetite and causing weight loss by administering to a patient **hydroxy citric** acid in the form of a potassium salt extracted from **Garcinia** fruit. Methods of inhibiting cytoplasmic citric lyase and increasing fat metabolism in a patient are also described.
SUMM The invention is directed to a new process for making **hydroxy citric** acid in a form that is stable and biologically active. Compositions containing the potassium **hydroxy citric** acid are useful as natural appetite suppressants.
SUMM During the 1970s, scientists at Brandeis University and at Hoffman LaRoche demonstrated that synthetic **hydroxycitric** acid, when blended with the diet, had a marked suppressive effect on weight gain in rats. The researchers noted that. . .
SUMM 1. The poor technology of HA extraction from the fruit of **Garcinia** cambogia often provides HCA in lactone form, which is inactive, or less active, in inhibiting the citrate lyase;
SUMM In the past, it has been difficult to isolate **hydroxy citrate** in a form which is both stable and biologically active. **Hydroxy citric** acid exists in two forms, the free acid form and the lactone form. The free acid form is biologically active. . .
SUMM . . . procedure, that of Y. S. Lewis et al., in Phytochem 1965, Vol. 4, pp. 610-625, results in the isolation of **hydroxy citric** acid lactone.
SUMM I. WATER EXTRACT OF (-) **HYDROXYCITRIC** ACID FROM FRUIT OF **GARCINIA** CAMBOGIA (Lewis, Y. S. and Neelakantan, S., phytochemistry (1965) Vol. 4; pp. 619-625)
SUMM The prior art procedure to obtain (-)HCA from **Garcinia** cambogia on a large scale included the following procedure:
SUMM . . . to form viscous, dark, heavy liquid; this treatment resulted in formation of a hygroscopic material consisting of potassium salt of **hydroxycitric** acid;
SUMM II. ACETONE EXTRACT OF (-) **HYDROXYCITRIC** ACID FROM THE FRUIT
OF **GARCINIA** CAMBOGIA (Lewis, Y. S. (1981) Methods in Enzymology, Vol. 77; Published by Academic Press; pp. 613-619).
SUMM 1. One kg of fruit of **Garcinia** cambogia is kept in 1500 ml of

acetone in an overnight;

SUMM The invention provides HCA by combining it with potassium into potassium **hydroxycitrate**--a water soluble salt. Potassium is an ion primarily found in the cell cytoplasm, and it can easily cross from outside. . .

DRWD FIG. 1 is an infrared spectrum of potassium **hydroxy citrate**.

DRWD FIG. 2 is a thermogram of potassium **hydroxy citrate**.

DRWD FIG. 3 is a NMR spectrum of potassium **hydroxy citrate** .

DRWD FIG. 4 is an HPLC chromatogram of Potassium **Hydroxy Citrate**

DETD The process of the present invention is used to isolate **hydroxy citric** acid as potassium **hydroxy citrate** from a natural source of **Garcinia** species. Preferred sources include **Garcinia** cambogia and **Garcinia** indica.

DETD Briefly, fruit of the **Garcinia** species is extracted with an alkyl alcohol. Preferred alcohols include methyl alcohol, ethyl alcohol, propyl alcohol, and isopropyl alcohol. Especially preferred is methanol. The extract is treated with a suitable alkali to precipitate the potassium **hydroxy citrate**. Preferred alkalis include potassium hydroxide, potassium carbonate, etc. Most preferred alkali is potassium hydroxide.

DETD The general process includes the following steps. **Garcinia** fruit is extracted with an alkyl alcohol at above ambient temperature. This is done at or above atmospheric pressure. The. . . dried product is milled, sifted, blended and packed under nitrogen blanket to obtain product. The yield from 500 kgs of **garcinia** fruit ranges from 60 to 150 kgs of potassium **hydroxy citrate** based on the **hydroxy citric** acid content present in the fruit.

DETD **Hydroxy citric** acid exists in two forms, i.e., free acid form and lactone form. The free acid form is biologically active and. . .

DETD Another unique aspect of our process is that our potassium **hydroxy citrate** is water soluble and therefore, it is readily available in the biological system for its bioefficacy.

DETD 1. The 500 kg of **Garcinia** fruit is extracted with 1500 1 of methanol at about reflux temperature for 3 hours;

DETD 3. Additional 1500 l of methanol is added to the **Garcinia** fruit and refluxed for about 3 hours;

DETD 5. The 1500 l of methanol is added again to the **Garcinia** fruit and refluxed for 3 hours;

DETD 9. This is again refluxed for about 3 hours to attain constant pH 10 to precipitate potassium **hydroxycitrate**;

DETD 14. The yield from 500 kg of **Garcinia** fruit is about 150 kg of potassium **hydroxycitrate**.

DETD **Hydroxy citric** Not less than 50% on anhydrous basis acid content

DETD The infrared absorption spectrum of a potassium bromide dispersion of potassium **hydroxy citrate**, previously dried, exhibits maxima only at the same wavelength as that of similar preparation of Working Standard. IR Spectrum of Potassium **Hydroxy Citrate** Working Standard is shown in FIG. 1.

DETD Potassium **hydroxy citrate** is analyzed by Thermogravimetry. This technique is used to estimate the presence of water of hydration in the product. The. . .

DETD Assay of the product is estimated by estimating the content of **HYDROXY CITRIC** ACID and POTASSIUM.

DETD For determination of **HYDROXY CITRIC** ACID, the following methods are employed:

DETD In this method, normally, (-) Threo **Hydroxy Citric** Acid Ethylene Diamine Salt (Fluka Standard) is used as a Standard to estimate **Hydroxy Citric** Acid content in Potassium **Hydroxy Citrate**. This Standard is not readily available, and therefore an alternate standard, Potassium **Hydroxy Citrate** is preferred. A pure sample of Potassium **Hydroxy Citrate** has been synthesized and validated against the Fluka Standard (FIG. 4). In the method given below, Potassium **Hydroxy Citrate** is used as a Working Standard (WS).

DETD 50 mg of Potassium Salt of **Hydroxy Citric** Acid (WS) is dissolved in 10 ml of water, and diluted to 25 ml with water.

CLM What is claimed is:

. . . in a patient in need of such effect comprising administering to said patient an appetite suppressing effective amount of potassium **hydroxycitric** acid composition comprising less than 2% by weight of potassium **hydroxycitric** lactone, based on the combined amount of potassium **hydroxycitric** acid and potassium **hydroxycitric** lactone.

2. A method for inhibiting cytoplasmic citric lyase in a patient in need of such inhibition comprising administering to said patient a citrate lyase inhibiting effective amount of potassium **hydroxycitric** acid composition comprising less than 2% by weight of potassium **hydroxycitric** lactone, based on the combined amount of potassium **hydroxycitric** acid and potassium **hydroxycitric** lactone.

3. A method of increasing fat metabolism in a patient in need of such effect comprising administering to said patient a fat metabolism increasing effective amount of potassium **hydroxycitric** acid composition comprising less than 2% by weight of potassium **hydroxycitric** lactone, based on the combined amount of potassium **hydroxycitric** acid and potassium **hydroxycitric** lactone.

4. A method for causing weight loss in a patient in need of such an effect comprising administering to said patient a weight loss effective amount of potassium **hydroxycitric** acid composition comprising less than 2% by weight of potassium **hydroxycitric** lactone, based on the combined amount of potassium **hydroxycitric** acid and potassium **hydroxycitric** lactone.

5. A method as recited in claim 4 wherein the potassium **hydroxycitric** acid is non-hygroscopic.

. . . for suppressing appetite in a subject in need of such effect comprising administering an appetite suppressing effective amount of potassium **hydroxycitric** acid composition made by a process comprising: a) extracting **Garcinia** fruit with an alkyl alcohol at least three times to obtain a first extract, a second extract and a third. . . third extract to obtain a combined extract; c) treating said combined extract with potassium hydroxide and reflux to form potassium **hydroxy citrate** precipitate; d) filtering said precipitate to obtain filtered precipitate; e) washing said filtered precipitate with an alkyl alcohol to obtain. . . to obtain dried precipitate; and g) milling, sifting, blending and packing said

dried precipitate under nitrogen to obtain said potassium **hydroxycitric** acid composition.

. . . a patient in need of such inhibition comprising administering to said patient a citrate lyase inhibiting effective amount of potassium **hydroxycitric** acid composition made by a process comprising: a) extracting **Garcinia** fruit with an alkyl alcohol at least three times to obtain a first extract, a second extract and a third. . . third extract to obtain a combined extract; c) treating said combined extract with potassium hydroxide and reflux to form potassium **hydroxycitrate** precipitate; d) filtering said precipitate to obtain filtered precipitate; e) washing said filtered precipitate with an alkyl alcohol to obtain. . . to obtain dried precipitate; and g) milling, sifting, blending and packing said dried precipitate under nitrogen to obtain said potassium **hydroxycitric** acid composition.

. . . a patient in need of such effect comprising administering to said patient a fat metabolism increasing effective amount of potassium **hydroxycitric** acid composition made by a process comprising: a) extracting **Garcinia** fruit with an alkyl alcohol at least three times to obtain a first extract, a second extract and a third. . . third extract to obtain a combined extract; c) treating said combined extract with potassium hydroxide and reflux to form potassium **hydroxycitrate** precipitate; d) filtering said precipitate to obtain filtered precipitate; e) washing said filtered precipitate with an alkyl alcohol to obtain. . . to obtain dried precipitate; and g) milling, sifting, blending and packing said dried precipitate under nitrogen to obtain said potassium **hydroxycitric** acid composition.

. . . a patient in need of such an effect comprising administering to said patient a weight loss effective amount of potassium **hydroxycitric** acid composition made by a process comprising: a) extracting **Garcinia** fruit with an alkyl alcohol at least three times to obtain a first extract, a second extract and a third. . . third extract to obtain a combined extract; c) treating said combined extract with potassium hydroxide and reflux to form potassium **hydroxycitrate** precipitate; d) filtering said precipitate to obtain filtered precipitate; e) washing said filtered precipitate with an alkyl alcohol to obtain. . . to obtain dried precipitate, and g) milling, sifting, blending and packing said dried precipitate under nitrogen to obtain said potassium **hydroxycitric** acid composition.

IT Appetite depressants
IT **Garcinia**
(prepn. of potassium hydroxycitrate from Garcinia fruit)
IT **185196-38-7P**
(prepn. of potassium hydroxycitrate from Garcinia fruit)
IT **27750-10-3**, (-)-Hydroxycitric acid
(prepn. of potassium hydroxycitrate from Garcinia fruit)
IT **185196-38-7P**
(prepn. of potassium hydroxycitrate from Garcinia fruit)
IT **27750-10-3**, (-)-Hydroxycitric acid
(prepn. of potassium hydroxycitrate from Garcinia fruit)